
CULTURAL RESOURCES SURVEY OF 5,000 ACRES WITHIN THE WHITE OAK CREEK MITIGATION AREA (WOCMA), BOWIE, MORRIS, AND TITUS COUNTIES, TEXAS: 1993-1994

by
**Maynard B. Cliff
Wm. David White
Steven M. Hunt
Darryl Pleasant
Gary L. Shaw**

for
**U.S. Army Corps of Engineers
Fort Worth District**

**WHITE OAK CREEK MITIGATION AREA ARCHEOLOGICAL TECHNICAL SERIES
REPORT OF INVESTIGATIONS
NUMBER 5**



GEO-MARINE, INC.



**US Army Corps
of Engineers
Fort Worth District**

DISTRIBUTION STATEMENT A

**Approved for public release;
Distribution Unlimited**

19960613 093

DTIC QUALITY INSPECTED 1

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBERS WHITE OAK CREEK MITIGATION AREA ARCHEOLOGICAL TECHNICAL SERIES Report of Investigations No. 5			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Geo-Marine, Inc.		6b. OFFICE SYMBOL (if applicable)	7a. NAME OF MONITORING ORGANIZATION US Army Corps of Engineers, Ft. Worth District		
6c. ADDRESS (City, State, and Zip Code) 550 E. 15th Street Plano, Texas 75074			7b. ADDRESS (City, State, Zip Code) PO Box 17300 Fort Worth, Texas 76102-0300		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION US Army Corps of Engineers, Fort Worth District		8b. OFFICE SYMBOL (if applicable)	9. PROCUREMENT INSTRUMENT ID NUMBER DACA63-90-D-0006, Delivery Order No. 0010		
8c. ADDRESS (City, State, Zip Code) PO Box 17300 Fort Worth, Texas 76102-0300			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
11. TITLE (Include Security Classification) Cultural Resources Survey of 5,000 Acres Within the White Oak Creek Mitigation Area (WOCMA), Bowie, Morris, and Titus Counties, Texas: 1993-1994					
12. PERSONAL AUTHOR(S) Maynard B. Cliff, David White, Steven M. Hunt, Darryl Pleasant, and Gary Shaw					
13a. TYPE OF REPORT Final Report		13b. TIME COVERED FROM Jul. '93 to May '96		14. DATE OF REPORT (Year, Month, Day) May 1996	
15. PAGE COUNT 183 + Appendices					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) Archeological survey of 5,000 acres in the White Oak Creek Mitigation Area (WOCMA) in Bowie, Morris, and Titus Counties, Texas.		
FIELD	GROUP	SUB-GROUP			
05	06				
19. ABSTRACT (Continue on reverse if necessary and identify by block number) In 1993, Geo-Marine, Inc., was contracted by the U.S. Army Corps of Engineers, Fort Worth District, to conduct cultural resources investigations on 5,000 acres of the planned White Oak Creek Mitigation Area (WOCMA). This work was to include an intensive pedestrian survey for both prehistoric and historical cultural resources, and an initial assessment of these resources in terms of their eligibility for inclusion in the National Register of Historic Places (NRHP). Pedestrian survey was carried out in stages between September 1993 and August 1994, as areas became accessible. As a result, 59 sites and 34 nonsite localities were identified within Bowie, Morris, and Titus counties. Fifty-four of these are prehistoric in date, four are multicomponent prehistoric and historical, and one has only an historical component. The sample of prehistoric sites contains material ranging in age from the Paleo-Indian up through the Late Caddoan period, with Caddoan components being most common. Of the few historic components, several appear to be twentieth century recreational hunting sites, several are nineteenth to twentieth century domestic-related sites, and one appears to be a twentieth century refuse site. Twelve sites are deemed ineligible for inclusion in the NRHP. The remaining 47 sites (41BW550, -551, -552, -553, -555; 41MX48, -51, -74, -75, -76, -77, -78, -79, -80, -81, -84, -85, -87, -88, -89, -90, -91, -92, -93, -94, -95, -96, -97, and -98; and 41TT80, -82, -662, -663, -664, -665, -667, -668, -669, -670, -671, -672, -673, -674, -676, -677, -679, and -680) have an unknown eligibility status and require further investigation to determine their final status. The nonsite localities, which represent largely isolated prehistoric finds, are also deemed to be ineligible for inclusion in the NRHP.					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Jay Newman			22b. TELEPHONE (Include Area Code) 817-885-6388		22c. OFFICE SYMBOL CESWF-PL-RC

**CULTURAL RESOURCES SURVEY OF 5,000 ACRES
WITHIN THE WHITE OAK CREEK MITIGATION AREA
(WOCMA), BOWIE, MORRIS, AND TITUS COUNTIES,
TEXAS: 1993-1994**

by

Maynard B. Cliff
Wm. David White
Steven M. Hunt
Darryl Pleasant
Gary L. Shaw

with contributions by

Sharlene N. Allday
Stephen P. Austin
Brian S. Shaffer
Duane E. Peter

Principal Investigators

Duane E. Peter
Maynard B. Cliff, Ph.D.

for

U.S. Army Corps of Engineers
Fort Worth District

WHITE OAK CREEK MITIGATION AREA ARCHEOLOGICAL TECHNICAL SERIES
REPORT OF INVESTIGATIONS
NUMBER 5

Geo-Marine, Inc.
550 Fifteenth Street
Plano, Texas

May 1996

CONTRACT DATA

The preparation of this document was accomplished under Contract No. DACA63-90-D-0006, Delivery Order No. 0010 (GMI project # 1106-010), with the U.S. Army Corps of Engineers, Fort Worth District, P.O. Box 17300, Fort Worth, Texas 76102.

EXECUTIVE SUMMARY

This report is concerned with the cultural resources survey of approximately 5,000 acres of the White Oak Creek Mitigation Area (WOCMA), located within Bowie, Cass, Morris, and Titus counties, Texas. This work was undertaken in order to identify a portion of the total number of cultural resource properties that will be included within the boundaries of WOCMA and to evaluate their potential for inclusion in the National Register of Historic Places (NRHP).

The present survey resulted in the identification and recording of 59 cultural resource properties and 34 nonsite localities within three of the four counties that will include portions of WOCMA. Of the 59 archeological sites, 57 were previously unrecorded (six within Bowie County, 31 within Morris County, and 20 within Titus County), while the remaining two (both within Titus County) were already known. Fifty-four of these properties presently are identified as being solely prehistoric sites, four as multicomponent prehistoric and historical sites, and one as a single component historical site.

At the present time, 47 sites are felt to be of unknown status in regard to their eligibility for inclusion in the NRHP and to require further investigation in the form of archeological testing. The remaining 12 sites are felt to be ineligible for inclusion in the NRHP. The nonsite localities, which represent prehistoric isolated finds or surface manifestations, are also felt to be ineligible for inclusion in the NRHP and no further work is recommended for them.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iii
ABSTRACT	xv
ACKNOWLEDGMENTS	xvii
1. INTRODUCTION	1
2. NATURAL SETTING OF THE PROJECT AREA	7
Geology and Geomorphology	7
Soils	8
Hydrology	12
Climate	12
Flora	13
Fauna	14
Paleoclimatic Reconstruction	15
3. CULTURAL SETTING OF THE PROJECT AREA	17
Introduction	17
Previous Archeological Research	17
Prehistoric Research	17
Historic Period Research	20
Previous Research at WOCMA	21
Native American Culture History	22
Paleo-Indian Period	22
Archaic Period	23
Early Ceramic Period	24
Formative and Early Caddoan Periods	25
Middle Caddoan Period	26
Late Caddoan Period	26
Historic Caddoan Period	27
European and American Historical Background	28
European Exploration and Colonization, 1542-1803	28
Initial North American Settlement and Growth, 1804-1860	28
Civil War and Aftermath, 1860-1870	29
Initial Commercialization, 1870-1920	30
Depression and Recovery, 1920-present	31

Table of Contents
(cont'd)

4. RESEARCH OBJECTIVES AND METHODS	33
Intensive Survey Methodology	33
Artifact Treatment and Analysis	35
Prehistoric Artifact Analysis	35
Historic Artifact Analysis	36
5. RESEARCH RESULTS	39
Site Descriptions	39
Bowie County	39
Site 41BW550	39
Site 41BW551	40
Site 41BW552	46
Site 41BW553	48
Site 41BW554	51
Site 41BW555	53
Morris County	55
Site 41MX48	55
Site 41MX49	57
Site 41MX50	60
Site 41MX51	60
Site 41MX52	63
Site 41MX53	64
Site 41MX74	65
Site 41MX75	68
Site 41MX76	69
Site 41MX77	70
Site 41MX78	73
Site 41MX79	73
Site 41MX80	76
Site 41MX81	77
Site 41MX82	78
Site 41MX83	81
Site 41MX84	82
Site 41MX85	83
Site 41MX86	85
Site 41MX87	86
Site 41MX88	87
Site 41MX89	89
Site 41MX90	90
Site 41MX91	92
Site 41MX92	94
Site 41MX93	96
Site 41MX94	97
Site 41MX95	98
Site 41MX96	100
Site 41MX97	102
Site 41MX98	104

Table of Contents
(cont'd)

Titus County	105
Site 41TT80	105
Site 41TT82	108
Site 41TT661	110
Site 41TT662	110
Site 41TT663	113
Site 41TT664	115
Site 41TT665	117
Site 41TT666	118
Site 41TT667	119
Site 41TT668	121
Site 41TT669	123
Site 41TT670	123
Site 41TT671	127
Site 41TT672	129
Site 41TT673	129
Site 41TT674	132
Site 41TT675	134
Site 41TT676	136
Site 41TT677	137
Site 41TT678	139
Site 41TT679	139
Site 41TT680	142
Locality Descriptions	142
 6. SUMMARY AND RECOMMENDATIONS	149
Comments on NRHP Eligibility Criteria	149
Archeological Results of the 1993-1994 WOCMA Survey	152
Prehistoric Settlement Patterns	160
Recommendations	161
 REFERENCES CITED	167
 APPENDICES:	
A. DEFINITIONS OF PREHISTORIC ARTIFACT CLASSES <i>by Sharlene N. Allday, Floyd B. Largent, Jr., and Maynard B. Cliff</i>	A-1
B. FRAMEWORK FOR ANALYSIS OF HISTORIC ARCHEOLOGICAL MATERIALS <i>by Melissa M. Green, Stephen P. Austin, and Maynard B. Cliff</i>	B-1
C. PREHISTORIC ARTIFACTS RECOVERED DURING THE 1993-1994 WHITE OAK CREEK MITIGATION AREA (WOCMA) SURVEY	C-1
D. HISTORIC ARTIFACTS RECOVERED DURING THE 1993-1994 WHITE OAK CREEK MITIGATION AREA (WOCMA) SURVEY	D-1
E. VERTEBRATE FAUNA FROM SIX SITES IN THE WHITE OAK CREEK MITIGATION AREA (WOCMA), NORTHEAST TEXAS <i>by Brian S. Shaffer</i>	E-1
F. CURATED MATERIAL RESULTING FROM THE 1993-1994 WHITE OAK CREEK MITIGATION AREA (WOCMA) SURVEY	F-1

LIST OF FIGURES

1. Location of the White Oak Creek Mitigation Area (WOCMA) in Bowie, Cass, Morris, and Titus counties, Texas	3
2. White Oak Creek Mitigation Area (WOCMA) showing locations of 1993-1994 intensive survey areas	5
3. Important archeological sites in the Northeast Texas portion of the Great Bend and the Sulphur River basin	18
4. Cultural resource sites recorded during the 1993-1994 pedestrian survey of portions of the White Oak Creek Mitigation Area (WOCMA)	41
5. Nonsite localities recorded during the 1993-1994 pedestrian survey of portions of the White Oak Creek Mitigation Area (WOCMA)	43
6. Pace and compass map of sites 41BW550 and 41BW551	45
7. Arrow point recovered from site 41BW551 (Shovel Test 14, Level 2)	46
8. Pace and compass map of site 41BW552	48
9. Pace and compass map of site 41BW553	49
10. Decorated ceramic sherds recovered from site 41BW553: (a) Nash Neck Banded (surface); (b) Coles Creek Incised (Shovel Test 18, Level 2)	50
11. Pace and compass map of site 41BW554	52
12. Pace and compass map of site 41BW555	54
13. Edgewood dart point recovered from site 41BW555 (Shovel Test 2, Level 3)	55
14. Pace and compass map of site 41MX48	56
15. Pace and compass map of site 41MX49	58
16. Pace and compass map of site 41MX50	61
17. Pace and compass map of site 41MX51	62
18. Pace and compass map of site 41MX52	64
19. Pace and compass map of site 41MX53	66
20. Pace and compass map of site 41MX74	67
21. Arrow point recovered from site 41MX74 (Shovel Test 12, Level 2)	68
22. Pace and compass map of site 41MX75	70
23. Pace and compass map of site 41MX76	71
24. Pace and compass map of site 41MX77	72
25. Pace and compass map of site 41MX78	74
26. Pace and compass map of site 41MX79	75
27. Pace and compass map of site 41MX80	77
28. Pace and compass map of site 41MX81	79
29. Pace and compass map of site 41MX82	80

List of Figures
(cont'd)

30. Fragmentary Edgewood dart point recovered from site 41MX82 (surface)	81
31. Pace and compass map of site 41MX83	82
32. Pace and compass map of site 41MX84	83
33. Pace and compass map of site 41MX85	84
34. Pace and compass map of site 41MX86	86
35. Pace and compass map of site 41MX87	88
36. Pace and compass map of site 41MX88	89
37. Decorated ceramic sherds recovered from site 41MX88: (a) Pease Brushed-Incised rim (Shovel Test 1, Level 4); (b) unidentified brushed rim (Shovel Test 1, Level 4)	90
38. Pace and compass map of site 41MX89	91
39. Pace and compass map of site 41MX90	92
40. Pace and compass map of site 41MX91	93
41. Pace and compass map of site 41MX92	95
42. Unfinished dart points recovered from site 41MX92 (Shovel Test 4, Level 3)	96
43. Pace and compass map of site 41MX93	97
44. Pace and compass map of site 41MX94	99
45. Lithic artifacts recovered from surface of site 41MX94: (a) fragmentary Meserve point; (b) limace	100
46. Pace and compass map of site 41MX95	101
47. Pace and compass map of site 41MX96	102
48. Punctated and applique sherd (possibly McKinney Plain) recovered from site 41MX96 (Shovel Test 1, Level 2)	103
49. Pace and compass map of site 41MX97	104
50. Pace and compass map of site 41MX98	106
51. Pace and compass map of site 41TT80	107
52. Pace and compass map of site 41TT82	109
53. Pace and compass map of site 41TT661	111
54. Pace and compass map of site 41TT662	112
55. Pace and compass map of site 41TT663	114
56. Friley arrow points recovered from site 41TT663: (a) Shovel Test 9, Level 2; (b) Shovel Test 17, Level 1; (c) Shovel Test 17, Level 2	115
57. Pace and compass map of site 41TT664	116
58. Pace and compass map of site 41TT665	118
59. Friley arrow point recovered from site 41TT665 (Shovel Test 6, Level 1)	119
60. Pace and compass map of site 41TT666	120
61. Pace and compass map of site 41TT667	121
62. Pace and compass map of site 41TT668	122
63. Pace and compass map of site 41TT669	124
64. Pace and compass map of site 41TT670	125
65. Decorated ceramics from site 41TT670: (a) unidentified incised and punctated sherd (Shovel Test 11, Level 3); (b) unidentified incised and punctated sherd (Shovel Test 23, Level 3)	127
66. Pace and compass map of site 41TT671	128
67. Pace and compass map of site 41TT672	130
68. Pace and compass map of site 41TT673	131
69. Pace and compass map of site 41TT674	133

List of Figures
(cont'd)

70. Sherd of Pease Brushed-Incised recovered from site 41TT674 (Shovel Test 16, Level 1)	134
71. Pace and compass map of site 41TT675	135
72. Pace and compass map of site 41TT676	137
73. Pace and compass map of site 41TT677	138
74. Pace and compass map of site 41TT678	140
75. Pace and compass map of site 41TT679	141
76. Pace and compass map of site 41TT680	143

LIST OF TABLES

1. Native American Cultural Sequence for the Great Bend Region of Northeast Texas	22
2. Summary of Cultural Resource Sites Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey	153
3. Nonsite Localities Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey	156
4. Estimated Dates of Components and Site Types for Cultural Resource Properties Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey	157
5. Summary of Prehistoric Site Components for Cultural Resource Properties Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey	159
6. National Register of Historic Places Assessment of Cultural Resource Properties Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey	163

ABSTRACT

In July of 1993, Geo-Marine, Inc., was contracted by the U.S. Army Corps of Engineers, Fort Worth District, to conduct cultural resources investigations within the planned White Oak Creek Mitigation Area (WOCMA), in an area of 5,000 acres to be identified as it became accessible (Delivery Order No. 0010, Contract DACA63-90-D-0006). This work was to include an intensive pedestrian cultural resources survey of these 5,000 acres for both prehistoric and historical cultural resources, and an initial assessment of these resources in terms of their eligibility for inclusion in the National Register of Historic Places. Pedestrian survey of these 5,000 acres at WOCMA was carried out in stages between September 1993 and August 1994, as survey areas became accessible.

As a result of this phase of the cultural resource investigations at WOCMA, 59 cultural resource sites (57 previously unrecorded and two already known) and 34 nonsite localities were identified within portions of Bowie, Morris, and Titus counties. Of the 59 cultural resource properties, 54 presently are identified as being entirely prehistoric in date, four as being multicomponent prehistoric and historical, and one as a single component historical site. The sample of prehistoric sites recorded by this survey contains material which ranges in age from the Paleo-Indian up through the Late Caddoan period, with Caddoan components being most common. Of the few historic components, several appear to be twentieth century recreational hunting sites, several are nineteenth to twentieth century domestic-related sites, and one appears to be a twentieth century refuse site.

Analysis of the survey data and collections has resulted in 12 sites being deemed ineligible for inclusion in the National Register of Historic Places (NRHP). The remaining 47 cultural resource sites (i.e., 41BW550, 41BW551, 41BW552, 41BW553, 41BW555, 41MX48, 41MX51, 41MX74, 41MX75, 41MX76, 41MX77, 41MX78, 41MX79, 41MX80, 41MX81, 41MX84, 41MX85, 41MX87, 41MX88, 41MX89, 41MX90, 41MX91, 41MX92, 41MX93, 41MX94, 41MX95, 41MX96, 41MX97, 41MX98, 41TT80, 41TT82, 41TT662, 41TT663, 41TT664, 41TT665, 41TT667, 41TT668, 41TT669, 41TT670, 41TT671, 41TT672, 41TT673, 41TT674, 41TT676, 41TT677, 41TT679, and 41TT680) have an unknown eligibility status and require further investigation in the form of archeological testing to determine their final status. The nonsite localities, which represent largely isolated prehistoric finds, are also deemed to be ineligible for inclusion in the NRHP and no further work is recommended for them.

ACKNOWLEDGMENTS

The authors of this report would like to express their appreciation to the many individuals and organizations who contributed to the successful completion of this project. The personnel of the U.S. Army Corps of Engineers, Fort Worth District, were particularly supportive of our efforts and provided both administrative support and guidance. Paramount among these were Mr. Dan McGregor and Mr. Jay Newman, whom we must thank for their constructive direction, useful suggestions, and valuable editorial comment. In addition, we would also like to thank Mr. Mike Bransford, Ranger at Wright Patman Lake, for his help in ways too numerous to mention.

In the field, the diligence and dedication of a number of able crew members were essential to the successful completion of the fieldwork. For the period of fieldwork from September 27 to October 18, 1993, Mr. Darryl Pleasant served as Crew Chief and the crew consisted of Diane Desmukes, Lory Merecka, Kathleen Hiatt, Kellie Krapf, and George Brown. During the latter part of this period, they were joined by a second crew, consisting of Gary Shaw (Crew Chief), Dawn Sullo, Jessica Helfrecht, and George Price. During the period from July 6 to August 19, 1994, the field crews consisted of Bruce Albert, Jeff Pangburn, Joanne Hunziker, Mike Lewis, George Brown, Emariana Taylor, Dawn Sullo, Adrian McClelland, and Dave Wolf. Gary Shaw and Darryl Pleasant continued to serve as Crew Chiefs. Dr. Maynard Cliff has served as Project Archeologist for the entire WOCMA project.

We also must express our appreciation to the management and employees of the Broseco Ranch, Omaha, Texas, for their cooperation in allowing our field crews access to the WOCMA survey areas, across Broseco Ranch land. In particular, we would like to thank Mr. Jerry Casteel, former Resource Manager for Broseco Ranch; Mr. Lawrence Wingate, present Resource Manager; Dr. Tom Woodward, General Manager for Broseco Ranch; and Mr. Phil English, of Broventure Co., Inc.

Artifact analysis and data input were undertaken by the staff of Geo-Marine, Inc., under the direction of Mr. Duane Peter and Dr. Cliff. The prehistoric artifacts were analyzed by Mr. Bob Vance and described by Mr. Wm. David White and Dr. Cliff; Ms. Melissa Green analyzed and described the historic artifacts; and the faunal remains were analyzed by Mr. Brian Shaffer of the University of North Texas. CAD drafting of the regional and site maps was done by Ms. Sandy Carr. Artifacts were illustrated by Ms. Julianne Gadsden, with ceramic profiles illustrated by Dr. Cliff. Copy editing and final formatting were done by Ms. Sharlene Allday and Ms. Denise Pemberton.

CHAPTER 1

INTRODUCTION

by
Maynard B. Cliff and Steven M. Hunt

The construction of Cooper Lake in northeastern Texas requires that, as a form of natural resources mitigation, an area of about 25,000 acres downstream in Bowie, Cass, Morris, and Titus counties, known as the White Oak Creek Mitigation Area (WOCMA), be developed and utilized for wildlife habitat (Figure 1). The U.S. Army Corps of Engineers, as a federal agency, is required to inventory and evaluate the cultural resources located within WOCMA. In accordance with Delivery Order No. 10 of Contract DACA63-90-D-0006 with the U.S. Army Corps of Engineers, Fort Worth District (CE), Geo-Marine, Inc. (GMI), of Plano, Texas, conducted an intensive archeological survey of a portion of the WOCMA, comprising a total of 5,000 acres. This work was conducted in accordance with and in partial fulfillment of the CE's obligation under the National Historic Preservation Act of 1966, as amended through 1992 (PL 89-665); the Archeological and Historical Preservation Act of 1974 (PL 93-291); the National Environmental Policy Act of 1969 (PL 90-190); and the Water Resources Development Act of 1986 (PL 99-662).

This report presents the results of an intensive pedestrian survey of 5,000 acres within WOCMA in Bowie, Morris, and Titus counties conducted in two phases: September 27 to October 18, 1993, and July 6 to August 19, 1994. Survey was primarily conducted around the upland periphery of WOCMA, due in part to the known impact to the area through construction of the WOCMA boundary fence and in part to the limited efficacy of pedestrian survey within the floodplain areas to be included within WOCMA, as shown by previous backhoe work (see Cliff and Peter, eds. 1992). What pedestrian survey was conducted within these floodplain areas was limited to elevated knolls and rises. The 5,000 acres surveyed under this delivery order, together with 4,430 acres of non-floodplain area previously surveyed (see Cliff, ed. 1994; Cliff and Peter, eds. 1992), brings the total surveyed acreage at WOCMA to 9,430 acres, equal to 37.7 percent of the total area of WOCMA (Figure 2).

As a result of this delivery order, 59 cultural resource sites and 34 nonsite localities were identified within the WOCMA area. Two of these sites (41TT80 and 41TT82) had been previously recorded, and they were relocated and their current condition recorded on updated site forms. The other 57 sites had not previously been recorded. Of the 59 cultural resource properties examined by the present survey, 54 were solely prehistoric in nature, four contained mixed historical and prehistoric components, and one was entirely historic in date. An additional three prehistoric sites (41BW551, 41BW555, and 41MX48) contained very small amounts of historic material, but this is considered insufficient to identify historic components at these sites. It is recommended that 47 of these cultural resource sites be considered of unknown eligibility for nomination to the National Register of Historic Places (NRHP) and require additional research effort, while 12 are recommended to be considered ineligible for inclusion in the NRHP.

This report contains six chapters. Chapters 2 and 3 provide information on the natural and cultural setting of the project area, respectively. Research goals and methods for the survey are presented in Chapter 4. Chapter 5 presents the research results, including descriptions of each of the identified sites and localities. Finally, a summary of the findings, site assessments, and recommendations are presented in Chapter 6. A list of references follows the main body of the report. Included as appendices are descriptions of the prehistoric and historic artifact categories used in the artifact analysis (Appendices A and B, respectively), the tabulated proveniences for all the prehistoric and historic artifacts, as well as faunal remains recovered during the survey (Appendices C, D, and E, respectively), and a listing of curated material resulting from the 1993-1994 WOCMA survey (Appendix F).

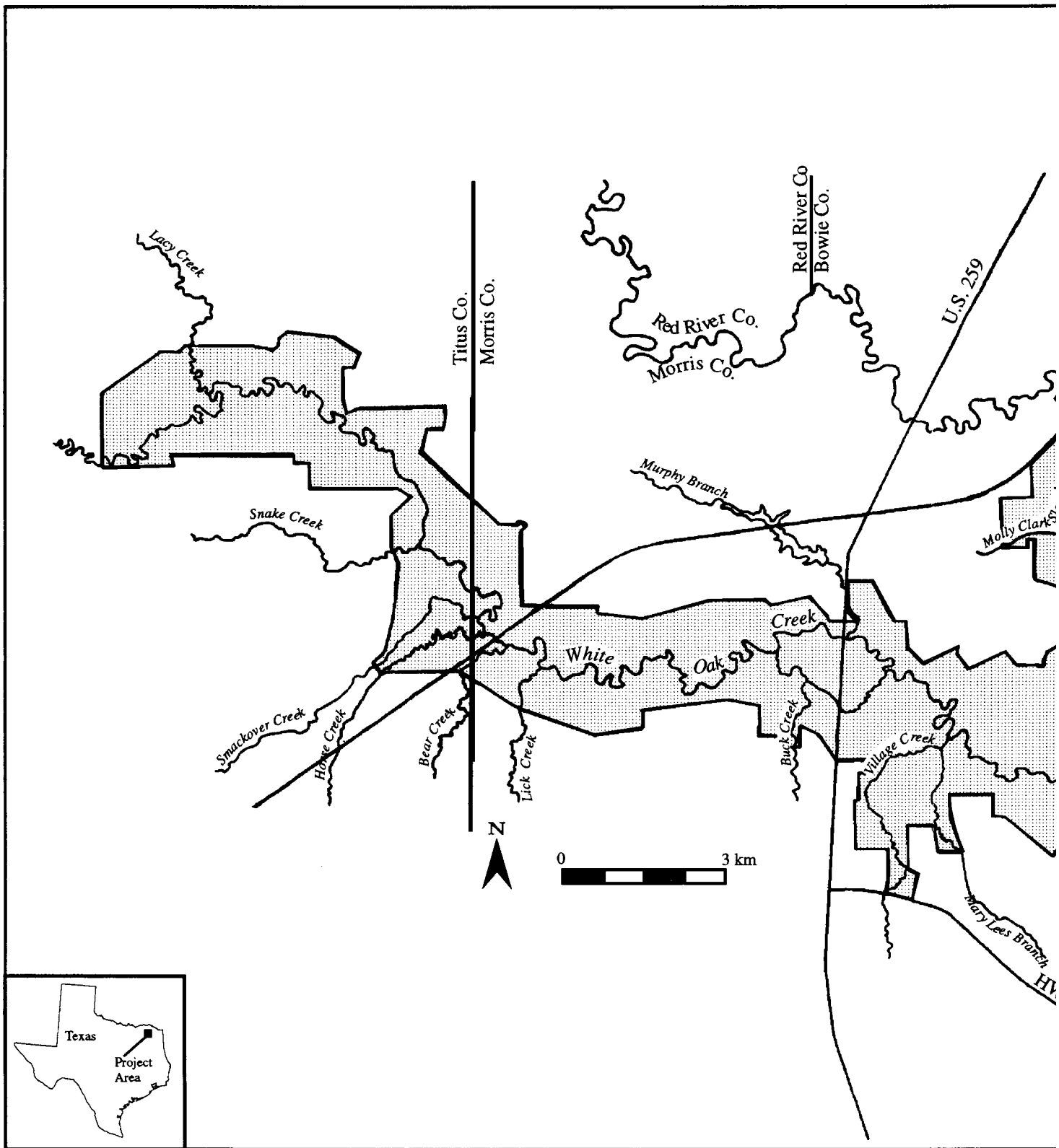
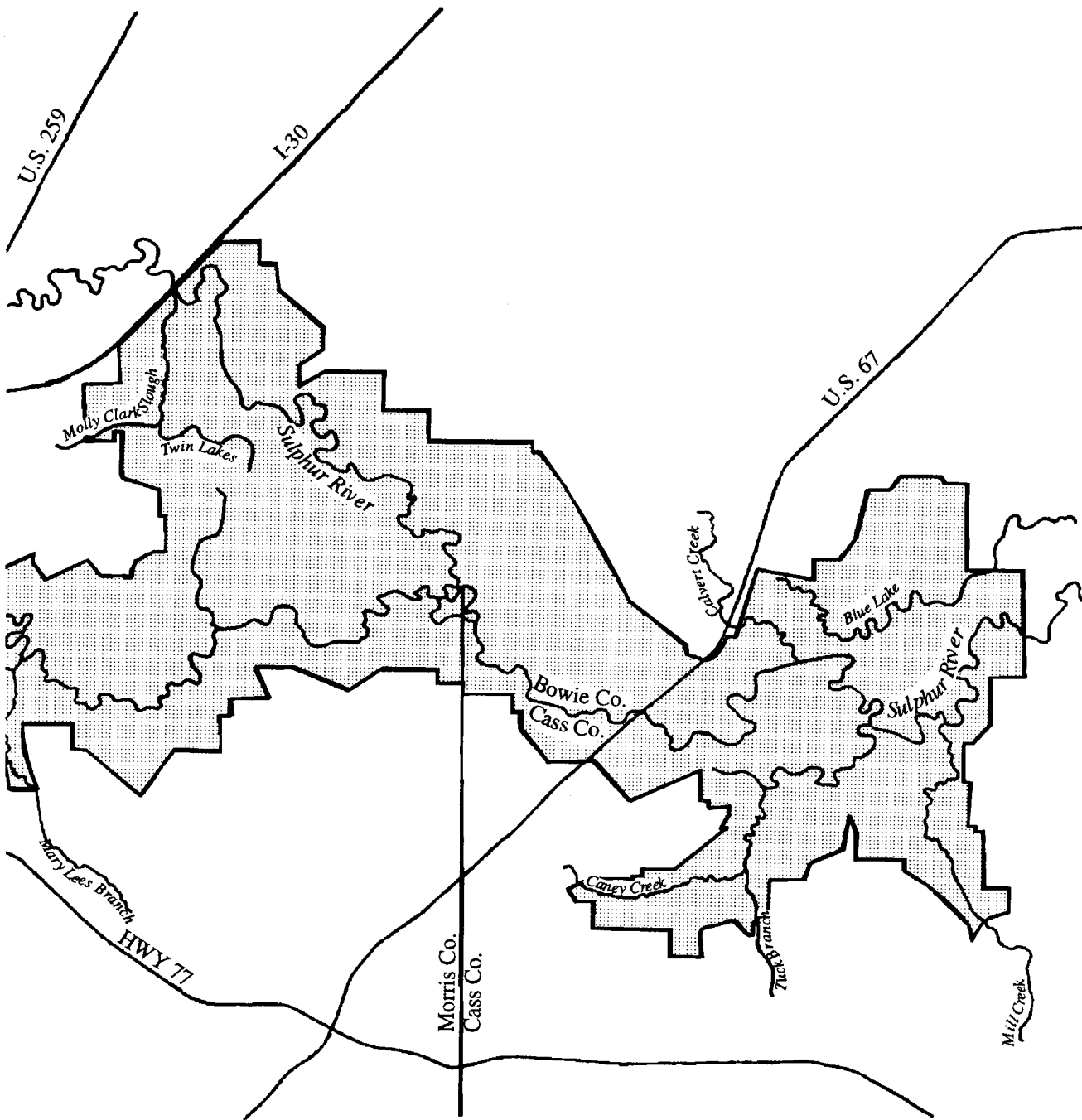


Figure 1. Location of the White Oak Creek Mitigation Area (WOCMA) in Bowie, Cass, Morris, and Titus counties, Texas.

2



1

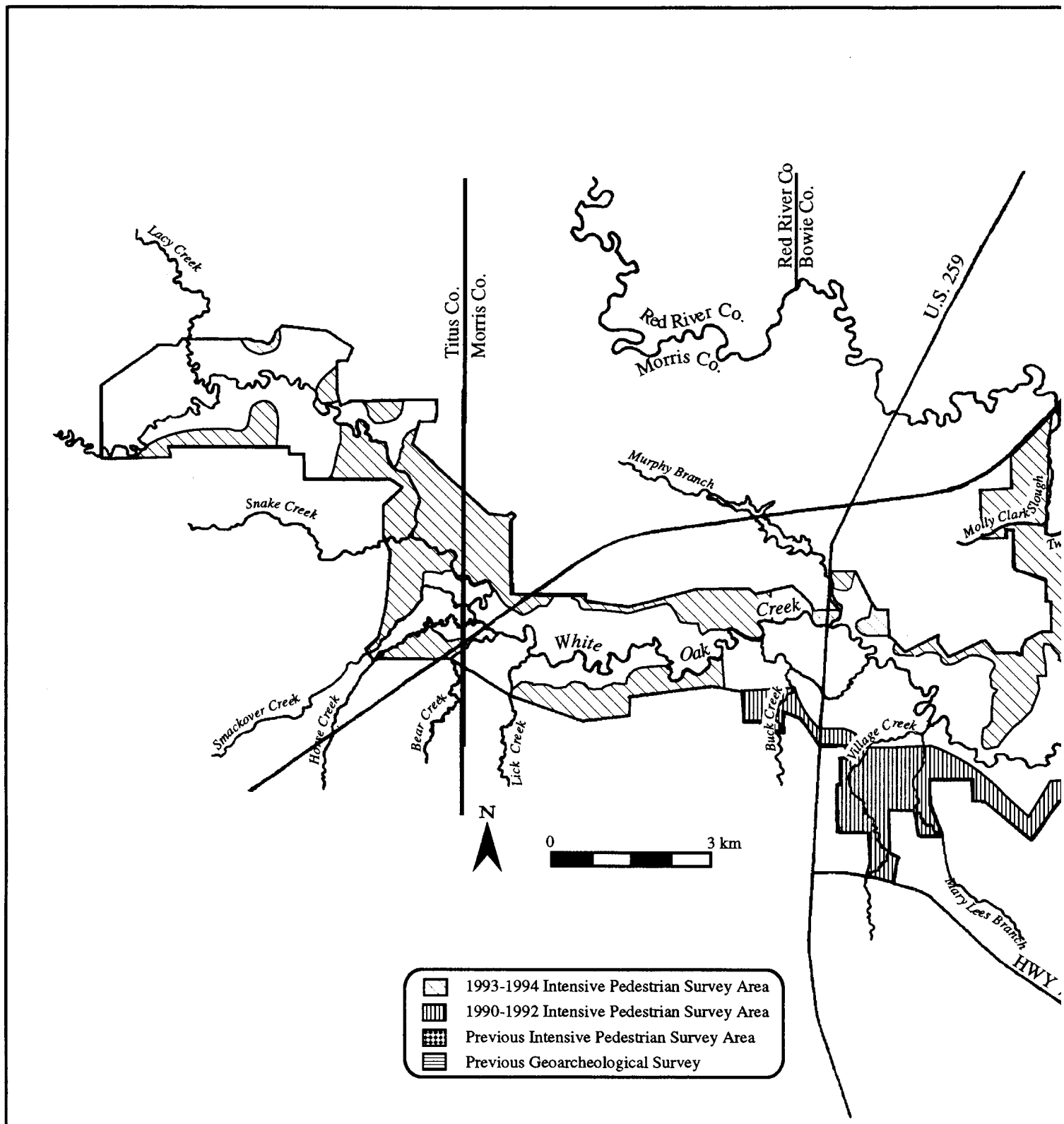
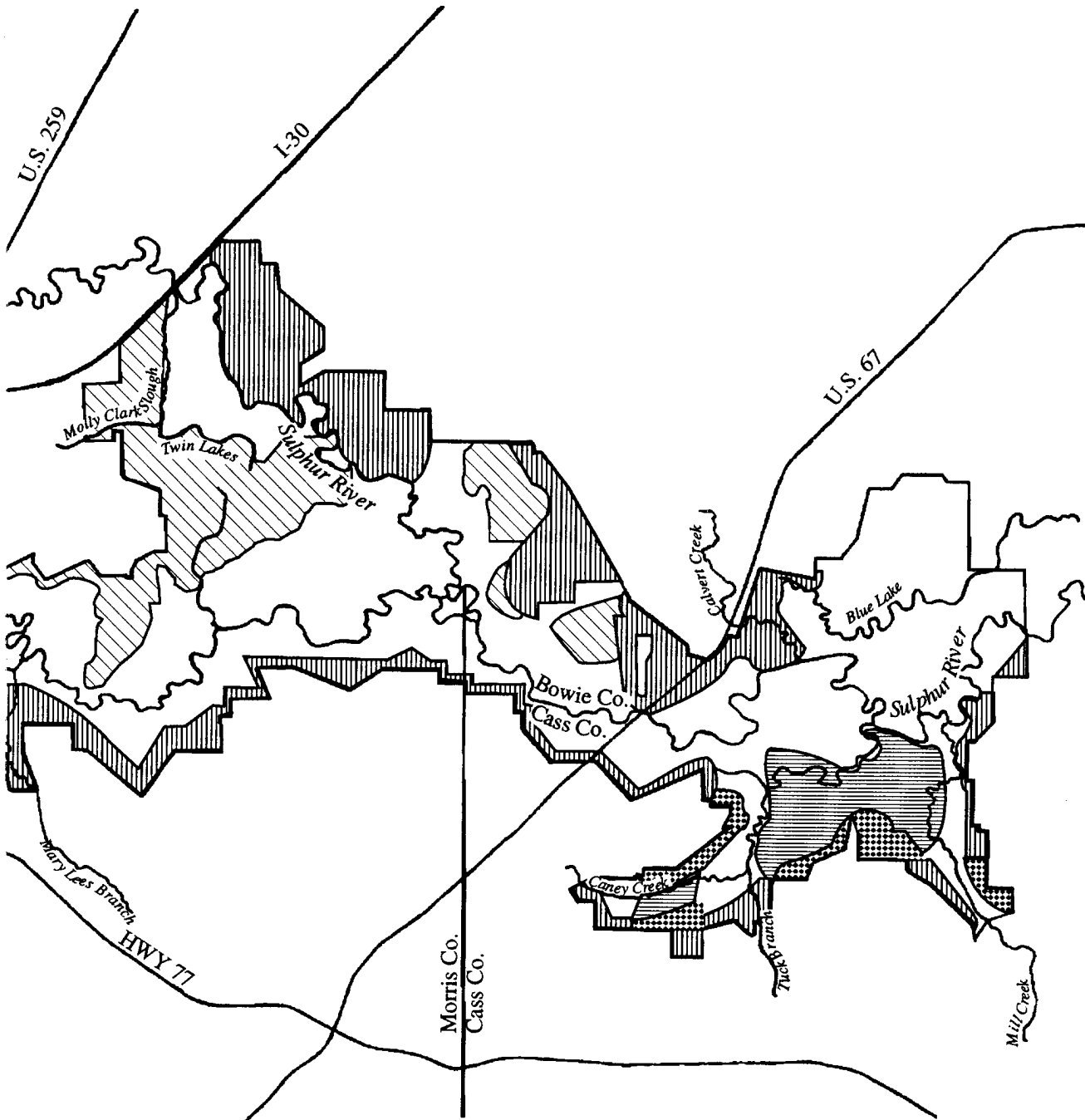


Figure 2. White Oak Creek Mitigation Area (WOCMA) showing locations of 1993-1994 intensive survey areas.

2



CHAPTER 2

NATURAL SETTING OF THE PROJECT AREA

by
Maynard B. Cliff and Steven M. Hunt

GEOLOGY AND GEOMORPHOLOGY

As planned, the White Oak Creek Mitigation Area (WOCMA) will occupy parts of Bowie, Cass, Morris, and Titus counties in Northeast Texas, and will include the lower portion of the floodplain of White Oak Creek, as well as parts of the floodplains of the Sulphur River and several of its tributaries. The areas of WOCMA intensively surveyed in 1993 and 1994 were limited to within Bowie, Morris, and Titus counties.

All of these counties lie within the Gulf Coastal Plains physiographic province which is a segment of the Mesozoic-Cenozoic coastal geosyncline (Murray 1960). This geosyncline forms a gradually sloping basin which dips toward the Gulf of Mexico and contains formations of limestone and sandstone deposited along the margins of an ancient receding coastline. The geologic strata forming Cass, Morris, and Titus counties, as well as the southern portion of Bowie County, were deposited during the Eocene, Pleistocene, and Holocene periods (Bureau of Economic Geology [BEG] 1964, 1966). Within the limits of WOCMA most exposed sediments are of Quaternary age (BEG 1966). These include extensive areas of recent (i.e., Holocene) alluvium within the floodplains of White Oak Creek, the Sulphur River, and their associated tributaries, as well as several small areas of Pleistocene fluvial terrace deposits located south of the Sulphur River in northeastern Cass County, south of White Oak Creek in northwestern Morris County, and north of the Sulphur River in Bowie County (BEG 1966). Wide bottomland areas along the Sulphur River and White Oak Creek cover much of WOCMA, while gently rolling to hilly features typify the non-floodplain perimeter of WOCMA.

Besides the Pleistocene terraces and Holocene alluvium, only one geologic formation is present within WOCMA. This is the Wilcox Group which covers the non-floodplain slope and upland edge areas of WOCMA. The Wilcox Group is composed of mostly gray, very thinly bedded to massive, locally cross-bedded, silty and sandy clay, in part carbonaceous. Calcareous siltstone and ironstone concretions are common, as are local beds of clay, lignite, silt, and quartz sands. Plant fossils, including petrified wood, are abundant.

Lithic materials suitable for the production of stone tools reportedly are present in the Wilcox Group (Fisher 1965). It contains sandstone concretions and ferruginous sandstones which may be suitable for use as small manos, nutting stones, or anvil stones. Also, within the Wilcox Group, large pieces of petrified wood and chert gravels are present (Fisher 1965:197). In addition, lithic materials in the form of chert and quartzite gravels are present within the Pleistocene terraces along the Sulphur River, while abundant raw material gravels are also present north of WOCMA within the Red River terraces and as upland lag gravels. Thus,

the prehistoric inhabitants of the local area would have had relatively easy access to local supplies of workable stone, as well as a wide variety of good quality stone a short distance to the north.

The landscape surrounding WOCMA consists of dissected uplands and is characterized by gently rolling ridges, with marshy bottomlands along streams. The highest elevations within WOCMA, over 115 m, are in the area overlooking Caney Creek, while the lowest elevations, below 70 m, occur in the most easterly sections of WOCMA, adjacent to the Sulphur River.

SOILS

The detailed mapping available for the Bowie County side of the Sulphur River suggests that the majority of the floodplain soils in proximity to the Sulphur River consist of Texark clay and Gladewater clay (the former mapped with small areas of Gladewater and Sardis, and the latter with Texark soils; Fox 1980), while the surrounding non-floodplain areas contain Annona loam, Ashford clay, Bryarly clay loam, Sawyer silt loam, Woodtell very fine sandy loam, and the Wrightsville-Rodessa complex (Fox 1980). Similarly, the detailed soil mapping available for the survey area in Morris and Titus counties (Roberts 1990) shows that the Sulphur River floodplain is largely covered by Texark clay (mapped with small areas of Nahatche and Woodtell soils), while the lower floodplain of White Oak Creek is covered by Gladewater clay (mapped with small areas of Kaufman, Texark, and Nahatche soils), which in the far western part of WOCMA is replaced by Estes clay loam. The upland soils along the edges of the White Oak Creek floodplain include: Bernaldo fine sandy loam, 1 to 3 percent slopes; Derly-Raino complex soils, 0 to 1 percent slopes; Ellis clay, 5 to 12 percent slopes, severely eroded; Freestone fine sandy loam, 1 to 3 percent slopes; Kirvin very fine sandy loam, 3 to 8 percent slopes; Talco-Raino complex soils, 0 to 1 percent slopes; Wolfpen loamy fine sand, 2 to 5 percent slopes; Woodtell fine sandy loam, 2 to 5 percent and 5 to 20 percent slopes; and Woodtell-Raino complex, 1 to 3 percent slopes. Nahatche loam-silty clay loam is present in the upper reaches of the smaller tributaries (mapped with small areas of Hopco, Iuka, and Bienville soils; Roberts 1990) and sometimes between Gladewater soils and upland deposits. Estes, Gladewater, Ellis, and Sardis soils are Inceptisols; Kaufman and Texark soils are Vertisols; Iuka and Nahatche soils are Entisols; Annona, Ashford, Bernaldo, Bienville, Bryarly, Derly, Freestone, Raino, Rodessa, Talco, Wolfpen, Woodtell, and Wrightsville soils are Alfisols; Hopco soils are Mollisols; and Kirvin and Sawyer soils are Ultisols (Fox 1980:128; Roberts 1990:190). Archeological sites recorded by the present survey are associated with Annona, Bernaldo, Derly-Raino complex, Estes, Freestone, Gladewater, Kaufman, Nahatche, Sawyer, Texark, Wolfpen, Woodtell, and Woodtell-Raino complex soils.

Annona loam, 1 to 3 percent slopes, is a gently sloping soil found on uplands. Typically, it has a surface layer of very dark grayish brown loam, 5 cm thick, below which is a brown loam, approximately 25 cm thick. Subsoil is a clay mottled in shades of red, brown, and gray in the upper part and grayish brown in the lower part. The subsoil is 203 cm or more in depth. The soil is slightly to very strongly acidic. Permeability is very slow; available water capacity is high; and runoff is slow (Fox 1980:15).

Bernaldo fine sandy loam, 1 to 3 percent slopes, is a gently sloping and well-drained soil on interstream divides. The surface layer is a dark yellowish brown fine sandy loam approximately 15 cm thick. The subsurface layer to 43 cm is a yellowish brown fine sandy loam. Between 43 cm and 122 cm is a yellowish brown sandy clay loam with mottles of yellow and red. From there to 203 cm the subsoil is mottled yellowish brown, red, light brownish gray, and brownish yellow sandy clay loam. Light gray clean sand and silt coatings are found on the surface of peds. The soil is slightly acid in the upper portions and very strongly acid in the lower portions. Permeability is moderate; runoff is slow; and available water capacity is high (Roberts 1990:20-21).

Derly-Raino complex soils are found on nearly level to depressional and mounded stream terraces. The complex is composed of approximately 70 percent Derly soils; 20 percent Raino soils; and 10 percent

Freestone, Woodtell, and Talco soils. Derly soils are typified by a brown silt loam surface layer approximately 18 cm thick, beneath which is a brownish gray silt loam 18 to 35.5 cm deep. The subsoil is a light brownish gray silty clay loam to 66 cm deep, while to 203 cm it consists of a clay which is grayish brown in the upper part and light brownish gray in the lower part. Tongues of light grayish brown sand and silt can be found throughout the subsoil. The soil is strongly acid in the upper part, very strongly acid in the middle part, and neutral in the lower part. It is poorly drained; permeability is very slow; runoff is slow; and available water capacity is high. The Raino soils begin with a dark yellowish brown loam 0 to 15 cm thick, beneath which is a strong brown loam, from 15 to 53 cm deep. The subsoil is a yellowish brown loam with light grayish brown mottling and pockets of sand and silt from 53 to 89 cm deep, while below this it is a mottled gray, strong brown, and yellowish red clay loam to 198 cm. Raino soils are medium acid in the upper part and very strongly acid in the lower part. The soils are moderately well drained; permeability is very slow; runoff is slow; and the available water capacity is high (Roberts 1990:29-30).

Estes clay loam, frequently flooded, is a nearly level and poorly drained soil found on the floodplains of large streams. The typical soil profile begins with a dark grayish brown clay loam strata, 0 to 20 cm thick, which is underlain by the subsoil. This subsoil is a grayish brown clay with brown and gray mottling from 20 to 160 cm below surface, while below this it is a light grayish brown clay loam (Roberts 1990:32-33)

Freestone fine sandy loam, 1 to 3 percent slopes, is found on gently sloping interfluvies, along footslopes, and at the heads of drainages. The typical soil profile for this map unit begins with a surface layer of dark brown sandy loam about 13 cm thick. This is underlain by a yellowish brown loam 13 to 28 cm deep. Below this is the subsoil, which from 28 to 68.5 cm is yellowish brown with gray and red mottling, loamy in the upper part and clay loam in the lower part. From 68.5 to 185.5 cm is a mottled grayish brown, red, and yellowish brown clay loam which grades into a brownish gray clay in the lower part. Streaks and pockets of light brownish gray clean sand and silt are present throughout the subsoil. Finally, a stratified light brownish gray shale and yellowish brown sandy clay loam with brown mottling is present from 185.5 to 216 cm below surface. The soil is medium to slightly acid in the upper part, very strongly acid in the middle part, and medium acid in the lower part. Permeability is slow; runoff is medium; and the available water capacity is high (Roberts 1990:33-34).

Gladewater clay consists of a nearly level, poorly drained and very slowly permeable soil on frequently flooded bottomlands. Typically, it has a very dark grayish brown clay surface layer about 15 cm thick. The subsoil is also clay to a depth of 160 cm, and is grayish brown in the upper part, dark grayish brown in the middle, and grayish brown in the lower level. This subsoil also has light olive brown and strong brown mottles. Gladewater clay is neutral in the upper part, slightly acid or medium acid in the middle, and neutral in the lower part. Permeability is very slow and the available water capacity is high. Runoff is very slow (Roberts 1990:34-35).

Kaufman clay is a nearly and somewhat poorly drained soil on floodplains of the Sulphur River. It has slopes of 0 to 1 percent. Typically, this soil has a black clay surface layer about 30.5 cm thick. The subsoil to a depth of 183 cm is a very dark gray clay with dark brown mottles. The soil is mildly alkaline in the upper part, slightly acid in the middle part, and neutral in the lower part. Permeability is very slow and the available water capacity is high. Runoff is slow (Roberts 1990:37-38).

Nahatche loam-silty clay loam is also a nearly level and somewhat poorly drained soil on frequently flooded bottomland areas along major streams. Typically this soil has a dark brown silty clay loam surface layer about 15 cm thick. The texture of this surface layer is variable and can be loam, silt loam, clay loam, and silty clay loam. The underlying subsoil material to a depth of 71 cm is grayish brown silt loam and light brownish gray loam with mottles in shades of brown. Below this, to a depth of 112 cm, the subsoil is grayish brown clay loam with mottles in shades of brown and gray. The next lower layer consists of a dark gray clay loam, with mottles in shades of brown and streaks of loam, down to 173 cm. Finally, the bottom level, to a depth of 203 cm, consists of a mottled grayish brown, dark gray, reddish yellow, and brownish yellow

loam. The soil is slightly acid to strongly acid in the upper part and neutral or mildly alkaline in the lower part. Permeability is moderate; the available water capacity is high; and runoff is slow (Roberts 1990:43).

Sawyer silt loam, 0 to 3 percent slopes, is a nearly level and gently sloping soil on uplands. The typical soil profile begins with a surface layer of dark grayish brown silt loam approximately 15 cm deep. Below this is a subsoil which extends to 203 cm or more in depth. This subsoil is a yellowish brown clay loam in the upper 23 cm; yellowish brown clay loam with reddish and grayish mottling in the succeeding 28 cm; and mottled gray, red, and strong brown clay in the lowest portions. The soil is slightly acid in the upper portions and grades to very strongly acid in the lowest portions. It is moderately well drained; runoff and permeability are high; and available water capacity is also high (Fox 1980:28-29).

Texark clay is a nearly level and poorly drained soil in frequently flooded areas along the Sulphur River in Bowie and Morris counties. It typically has a very dark gray clay surface layer about 43 cm thick. The underlying subsoil is a dark gray clay with mottles in shades of brown and yellow to a depth of 152 cm. The soil is mildly alkaline in the upper portion, strongly acid in the middle portion, and very strongly acid in the lower portion. Permeability is very slow; the available water capacity is high; and runoff is very slow (Roberts 1990:48).

Wolfpen loamy fine sand, 2 to 5 percent slopes, is a gently sloping and well-drained soil on ridges and interfluvies. A profile of this map unit generally begins with about 28 cm of a dark brown loamy fine sand, which is underlain by a yellowish brown loamy fine sand from 28 to 64 cm below surface. Beneath this is the subsoil, which from 64 to 142 cm consists of a yellowish brown sandy clay loam with red, brown, and gray mottling, and below 142 cm is a mottled grayish, light brownish gray, and strong brown sandy clay loam. The soil is slightly acid in the upper part, medium acid in the middle part, and very strongly acid in the lower part. Permeability is moderate; runoff is slow; and the available water capacity is moderate (Roberts 1990:50).

Woodtell fine sandy loam, 2 to 5 percent slopes, occurs on gentle slopes on low ridge tops and side slopes along upland streams. The areas are plane to slightly convex. The typical soil profile begins with a surface layer of dark yellowish brown sandy loam approximately 13 cm deep. The subsoil to a depth of 68.5 cm is a red clay mottled in shades of brown. Under this is a mottled light brownish gray and light olive brown clay underlain by clay loam to a depth of 122 cm. Below this is a light brownish gray and yellowish brown clay loam and shale to a depth of 190.5 cm. The soil is moderately well drained; permeability is very slow; runoff is medium; and available water capacity is high (Roberts 1990:51).

Woodtell fine sandy loam, 5 to 20 percent slopes, occurs on gentle to moderately steep slopes and is moderately well drained. The soil is naturally very similar to Woodtell fine sandy loam, 2 to 5 percent slopes. It typically has a dark brown fine sandy loam surface layer about 8 cm thick. The top layer of subsoil to a depth of 15 cm is dark yellowish brown fine sandy loam. Below this to a depth of 140 cm is a clay that grades into a clay loam in the lower portion. This is red to a depth of 66 cm, yellowish brown to 96.5 cm, and light gray and light brownish gray below this level. The substratum consists of a stratified light gray shale and strong brown sandy clay loam. The soil is generally medium acid in the upper part, very strongly acid in the middle part, and strongly acid in the lower part. Permeability is very slow; the available water capacity is high; and runoff is rapid (Roberts 1990:51).

The Woodtell-Raino complex, 1 to 3 percent slopes, is found on gently sloping, mounded upland areas. The complex is comprised of approximately 50 percent Woodtell soils, 30 percent Raino soils, and 20 percent Talco, Freestone, and Derly soils. Raino soils are found on mounds which occur at random in areas of Woodtell soils. These mounds are generally 60 to 125 cm high and about 10 to 25 m in diameter. The Woodtell soils begin with a dark grayish brown loam about 15 cm thick, which is underlain by a yellowish brown loam from 15 to 30 cm deep. Below this, from 30 to 122 cm, is the subsoil, consisting of a red clay in the upper part which grades to a light olive brown clay in the lower, with brown mottling throughout.

Finally, from 122 to 152 cm, there is a grayish brown clay, shaly clay, and sandy clay loam with brown mottling. Woodtell soils are medium acid in the upper part and very strongly acid in the lower part. Permeability is very slow; runoff is medium; and the available water capacity is high. Raino soils begin with a dark yellowish brown loam 0 to 13 cm thick, beneath which is a strong brown loam from 13 to 58 cm deep. The subsoil is a strong brown clay with red and brown mottling from 58 to 81 cm, and below this it is a mottled yellowish brown, light brownish gray, and strong brown clay to 175 cm. Finally, there is a light gray clay and shaly clay with brown mottling and black concretions to 203 cm deep. Raino soils are medium acid in the upper part, very strongly acid in the middle part, and neutral in the lower part. Permeability is very slow; runoff is slow; and the available water capacity is high (Roberts 1990:52-53).

The characteristics of these soils can be used to provide a tentative reconstruction of the land-use patterns of WOCMA during the prehistoric and early historic periods. Today, the floodplain soils in the northern portion of WOCMA along the Sulphur River and its major tributaries (i.e., Gladewater clay and Texark clay) are considered to be well suited for floodplain hardwood forest and some improved pasture grasses (Roberts 1990). Prior to the historic period, these areas were probably covered by bottomland forest composed of water-tolerant woodland species, interspersed with small open areas of native prairie grasses.

For the prehistoric and early historic inhabitants of WOCMA, the floodplain areas would have allowed easy access to water and provided temporary/seasonal campsites or work stations, although the yearly flooding would have probably precluded permanent occupation. The various major tributaries of White Oak Creek and the Sulphur River (such as Buck, Calvert, Caney, Mill, Tuck, and Village creeks and Mary Lees Branch) also most likely would have offered year-round access to water. The floodplain in general may have offered seasonal plant resources and scattered prairie areas would have provided good hunting. The trees would have provided building materials, fuel, and raw materials for manufactured articles, while the grasses would have provided material for baskets, clothing, etc. Today, these floodplain areas are considered poor candidates for crop production because of their frequent flooding (estimated as two to four times a year) and a water table that is near the surface during the winter and spring (Roberts 1990). For the prehistoric inhabitants, however, the nature of the clay soils themselves was probably more critical in judging their suitability for horticulture. These dense clay soils would have been difficult, if not impossible, to cultivate using the stone and wooden tools available to the prehistoric inhabitants of WOCMA. The same would probably have been true for the early historic inhabitants of the area, prior to the introduction of the iron plow.

The areas along the margins of WOCMA consist of upland slopes and edges. The soils in these areas are sandy and loamy, moderately well drained, and have a high available water capacity. For modern uses, they are limited by their steepness, which ranges from 5 to 20 percent and which results in erosion being a severe hazard. Today, these areas are considered to be well suited for woodland and pasture (Roberts 1990), and prior to the historic period they were probably covered by an oak/hickory/pine forest interspersed with small areas of open native prairie.

Prehistoric activity in this area would consist primarily of small campsites or horticultural hamlets on flat, well-drained areas, placed to take advantage of the rich resource base of both uplands and bottomland. Early historic settlement probably consisted of small, self-sufficient family farms which focused on cropping of well and moderately well-drained upland soils and the grazing of animals on the remainder. Sites located on these areas (especially those above the major tributaries of White Oak Creek and the Sulphur River) would have been close to water without the danger of seasonal flooding. These areas would have provided both the prehistoric and early historic occupants of WOCMA with a location to reside above the floodplain and close to water but outside of the flood zone. Such areas would have been suited to both temporary occupation during all seasons and permanent occupation. This location would have provided easy access to the resources of both the bottomland hardwood forest and the upland mixed oak/hickory/pine forest.

As with the floodplain, these upland areas are today considered to be unsuited for crop production, due to their slope, low permeability, and hazard of erosion (Roberts 1990). However, these difficulties would have

been less serious for prehistoric horticulturalists. More importantly, the sandy soils would have been easily tilled using stone and wooden implements. The small size of the native cultivated plots could easily have been accommodated within the small areas with a low slope, which would also have decreased the potential for erosion and increased permeability. During the early historic period, these areas would have provided easy access to more level upland zones, considered more suitable for farming and grazing, while the use of the iron plow would have allowed the partial development of the bottomlands for agricultural production.

HYDROLOGY

The White Oak Creek Mitigation Area lies entirely within the drainage basins of the Sulphur River, which forms the boundary between Bowie, Morris, and Cass counties in this area, and White Oak Creek. The primary tributary systems of the Sulphur River include the Caney Creek/Tuck Branch/Jennings Lake system, Mill Creek, Calvert Creek, and the Blue Lake System in the eastern part, and the Twin Lakes/Molly Clark Slough system in the western part. In addition, the north side of the Sulphur River between Highway 67 and Interstate 30 contains a number of small unnamed sloughs which are probably former channels of the river. Within the White Oak Creek basin, primary tributary systems include the Village Creek/Mary Lees Branch system, Murphey Branch, and the Buck Creek/Dunlap Lake system in the central part, and Lick, Bear, Horse, Smackover, Snake, and Lacy creeks in the western part. The extreme eastern portion of White Oak Creek may be a former channel of the Sulphur River, which was linked with Molly Clark Slough and Twin Lakes by way of Reddon Lake. In all cases, the headwaters of these creek systems are outside the boundaries of WOCMA.

An ample yearly rainfall provides a constant water flow in most of these streams. The slow permeability of many of the surrounding soils, together with the rapid runoff from the sloping uplands, results in a rapid channeling of rainwater into the floodplains of the creeks and river, but the slow permeability and runoff of the floodplain soils means that much of this water stays in the floodplain, in extensive water-filled sloughs and marshes. These habitats undoubtedly attract a variety of flora and fauna suitable to abundant water, resources which would provide food and raw materials to both prehistoric and historic inhabitants of the area.

A number of springs are located throughout the region, nearly all of which flow from the Queen City sand (Brune 1981). Important early historic springs were located near Linden, Mill Creek, Hughes Springs, Marietta, Douglasville, Atlanta, and McLeod. White Sulphur Springs near Marietta is the closest of these to WOCMA. Other nearby springs include Dalby Springs, to the northwest in Bowie County, and Glass Club Springs, east of Omaha in Morris County.

CLIMATE

The climate of the WOCMA area is subtropical, marked by long hot summers and short cool winters. The primary influences on the climate are the latitude, warm winds from the Gulf of Mexico, and cooler northern winds from the continental land mass to the north. Cold waves in the winter are rare and not severe, usually lasting only one or two days. The average summer temperature is around 27° C and the average daily maximum temperature is 33 to 34° C. In winter, the average temperature is 6 to 7° C. The last freezing temperature in spring is usually attained before April 11 and the first freezing temperature in fall usually does not occur until after November 1. The number of days in the growing season with temperatures above the freezing mark averages about 209 (Fox 1980:2, 81; Roberts 1990:2-3; Tables 1, 2, and 3).

Precipitation is fairly heavy throughout the year; prolonged droughts are rare, and the frequent afternoon thunderstorms in summer are adequate to maintain crops. Such afternoon thunderstorms occur about 50 days of the year in Bowie County and about 44 days out of the year in Morris County. Severe storms, including tornadoes, strike the area occasionally and often cause flooding and erosion. Every few years in the summer

or fall, a tropical depression moves inland causing extremely heavy rains for one to three days. Mean annual precipitation is about 1110 to 1140 mm, with 52 to 53 percent of this falling between April and September. The growing season for most crops falls within this period. As the average winter temperature is above freezing, snow fall is variable but rare (Fox 1980:2; Roberts 1990:3).

FLORA

The WOCMA area falls near the ecotone between the Pineywoods and the Post Oak Savannah of East Texas and includes within it several vegetation zones: the Willow Oak-Water Oak-Blackgum Forest and White Oak-Elm-Hackberry Forest within the bottomlands, and the Pine-Hardwood Forest (Shortleaf Pine-Post Oak-Southern Red Oak subtype), Other Native and/or Introduced Grasses, Post Oak Woods/Forest, and Post Oak Woods, Forest and Grasslands mosaic on the uplands (McMahan et al. 1984).

The Willow Oak-Water Oak-Blackgum Forest (whose overall distribution is principally in the lower floodplains of major rivers in northeastern Texas) is confined to the extreme eastern portion of WOCMA along the Sulphur River and its tributaries, Mill, Calvert, and Tuck/Caney creeks. The most common trees present today within the bottomlands at WOCMA are green ash, hackberry, elm, willow oak, water oak, eastern cottonwood, and sweetgum (Roberts 1990:35, 43, 48). Other associated species within this vegetation zone include beech, overcup oak, chestnut oak, cherrybark oak, sycamore, southern magnolia, white oak, black willow, bald cypress, swamp laurel oak, hawthorn, bush palmetto, common elderberry, southern arrowwood, poison oak, supplejack, trumpet creeper, crossvine, greenbriar, blackberry, rhomboid copperleaf, and St. Andrew's Cross (McMahan et al. 1984:19).

The predominant vegetation type found on the remaining bottomlands within WOCMA is the Water Oak-Elm-Hackberry Forest. Commonly associated plants include Cedar elm, American elm, willow oak, southern red oak, white oak, black willow, cottonwood, red ash, sycamore, pecan, bois d'arc, flowering dogwood, dewberry, coral-berry, dallisgrass, switchgrass, fescuegrass, bermudagrass, eastern gramagrass, Virginia wildrye, Johnsongrass, giant ragweed, yankeeweed, and Leavenworth eryngo (McMahan et al. 1984:22).

The most extensive vegetation group on the uplands within the survey area is the Post Oak Woods, Forest, and Grasslands Mosaic. It is closely associated with another major vegetation type within the WOCMA uplands, the Post Oak Woods/Forest. Both vegetation types are most apparent on the soils of the Post Oak Savannah. Plants commonly associated with the Post Oak Savannah include blackjack oak, eastern redcedar, mesquite, black hickory, live oak, sandjack oak, cedar elm, hackberry, yaupon, poison oak, American beautyberry, hawthorn, supplejack, trumpet creeper, dewberry, coral-berry, little bluestem, silver bluestem, sand lovegrass, beaked panicum, three-awn, sprangle grass, and tickclover (McMahan et al. 1984:19).

The Pine-Hardwood Forest (Shortleaf Pine-Post Oak-Southern Red Oak subtype) covers a large portion of Northeast Texas, including portions of all four WOCMA counties, and occurs on sandy uplands. The most common trees present within this vegetation zone are red oak, post oak, hickory, and shortleaf pine (Roberts 1990:52). Other associated species for this vegetation zone are: loblolly pine, black hickory, sandjack oak, flowering dogwood, common persimmon, sweetgum, sassafras, greenbriar, yaupon, wax myrtle, American beautyberry, hawthorn, supplejack, winged elm, beaked panicum, spranglegrass, Indiangrass, switchgrass, three-awn, bushclover, and tickclover (McMahan et al. 1984:25).

The least extensive of the upland vegetation groups within the survey area is Other Native Grasses and/or Introduced Grass. This vegetation type was created by the clearing of the ancient forests. The plant communities are a mixture of native or introduced grasses and forbs on grassland sites or mixed herbaceous communities resulting from the clearing of woody vegetation and may represent the early stages in the development of the Young Forest vegetation type (McMahan et al. 1984:29).

In addition to the wood resources for domestic activity, acorns, nuts, berries, and grasses were available to both prehistoric and historic groups alike. In general, it is safe to say that vegetal foodstuffs would have been most abundant in the hardwood-dominated forests, but it is also clear that such resources would have been available in varying quantities throughout the study area. The presence of acorns and hickory nuts would have proven beneficial in several ways. First, they are high in fats and provided a substantial portion of the diet for many southeastern Indian groups (Hilliard 1980), and second, during the fall, they would have attracted deer and turkey, both important prey species for most southeastern groups (Swanton 1946). Trees bearing edible nuts identified as being potentially present within WOCMA include white oak, red oak, water oak, and hickory. Other nut-producing species which may have been present as well include blackjack oak, shagbark hickory, mockernut hickory, black walnut, and pecan (Heartfield and Dieste 1984a:2-5; 1984b:2-5).

Wild fruits and berries, such as blackberry, dewberry, wild grape, wild strawberry, persimmon, plum, and cherry, would have provided a source of vitamins and carbohydrates for both prehistoric and historic peoples. Seeds of trees, shrubs, grasses, and weeds would attract animals which would in turn provide additional food. In addition, certain tubers available in the woodlands could have been collected for food as well as medicinal, craft, or ritual activities (Heartfield and Dieste 1984a:2-5; 1984b:2-5).

FAUNA

The fauna within WOCMA could have provided many of the daily needs for both prehistoric and early European populations. Animal products would have provided shelter, clothing, and a means of exchange, as well as bone, antler, and shell for tools, and feathers and various skins for decorations. In addition, it is safe to say that numerous types of invertebrates were abundant within WOCMA, along with various types of molluscs, including both bivalves and gastropods, and crustaceans known to have been used by southeastern Indian tribes (Swanton 1946). Among the fish resources, economically important families for both prehistoric and historic populations probably would have included gar, crappie, bass, buffalo, shad, sucker, carp, bowfin, shiner, pickerel, catfish, sunfish, and drum (Heartfield and Dieste 1984a:2-5; 1984b:2-5). Of the amphibians, only true frogs are valued for dietary purposes today, while the full range of frogs, turtles, turtle eggs, salamanders, and alligators would have been useful for both prehistoric and early historic populations. A wide variety of migratory birds, such as ducks, geese, and cranes, would have been most numerous in the late fall and early winter, while other resident birds, such as turkeys, doves, and pigeons, would have been available on a year-round basis.

Species of mammals which are known to have provided staple meat supplies for southeastern Indian groups include deer, squirrel, and rabbit (Swanton 1946), and the same was undoubtedly the case for early European populations. Other important mammal resources included bear, opossum, and raccoon. Additional mammals present in northeastern Texas today include least shrew, southeastern short-tailed shrew, eastern mole, southeastern myotis, red bat, evening bat, nine-banded armadillo, eastern cottontail, gray squirrel, fox squirrel, eastern harvest mouse, fulvous harvest mouse, cotton mouse, cotton rat, eastern woodrat, woodland vole, raccoon, mink, and river otter (Schmidly 1983). One important resource of the early historic period would have been animal furs which formed the basis of the early fur trade in Louisiana and East Texas (Usner 1992). Such valuable fur-bearing animals would have included rabbit, beaver, raccoon, weasel, mink, ringtail, opossum, red fox, gray fox, bobcat, coyote, badger, spotted skunk, striped skunk, nutria, muskrat, and otter. Many species, such as fish and waterfowl, may not presently be available within the area of WOCMA but would have been available in the past.

Deer, rabbit, squirrel, and turtle bones have generally been among the most numerous animal remains recovered from archeological sites in Northeast Texas (Bruseh and Perttula 1981), and deer, due to its large size, actually provided the bulk of protein in the diet of prehistoric and early historic peoples. Reptiles other than turtle, and small rodent bones, have also been recovered from archeological contexts at many sites in

Texas, but it is difficult to discern whether or not they contributed to the diet or were simply intrusive into the deposits (see Martin et al. 1987).

Obviously, the availability of both plant and animal resources, as well as that of botanical resources, may well have been different in the past as a result of regional climatic alterations which have been documented in pollen and geomorphological records in Texas and Oklahoma. In spite of this, faunal studies at archeological sites, such as Rodgers Rockshelter in southwestern Missouri, have shown that as climate changed over the past 9,000 to 10,000 years, different habitats comprising the mosaic of the total environment responded by increasing or decreasing in size. However, the climatic shift was never significant enough to precipitate a complete change in species composition (Purdue 1983). Thus, the modern distribution of animal species is probably much the same as it was in the past, and only the relative abundance of each species is different.

PALEOCLIMATIC RECONSTRUCTION

The prehistoric climatic history of northeastern Texas, as presently known, indicates a gradual warming trend following the end of the Pleistocene, interrupted only by a period of temperatures warmer than those experienced today (Bryant and Holloway 1985:56-66; Delcourt and Delcourt 1985:12-22). During the Late Wisconsin Full-Glacial Interval (ca. 23,000 to 16,500 years ago), it is believed that climatic conditions in northeastern Texas were considerably different from those of today, being much cooler and more mesic (Bryant and Holloway 1985). The subsequent Late Wisconsin Late-Glacial Interval (16,500 to 12,500 years ago) was apparently characterized by the persistence of a cool climate with an increased availability of precipitation during the summer growing season (Delcourt and Delcourt 1985:18-19).

During the Early-Holocene Interval (12,500 to 8,500 years ago) cool-temperature, mesic tree species became dominant throughout the mid-latitudes of the southeastern United States (Delcourt and Delcourt 1985:19). Reconstructed vegetation maps suggest that WOCMA was located in the Southeastern Evergreen forest with a Mixed Deciduous forest probably located to the north and west (Delcourt and Delcourt 1985:Figure 7b). In the Ouachita Mountains of eastern Oklahoma, pollen data from Ferndale Bog indicate that grasslands were replacing the previous deciduous conifer woodlands (Albert 1981). Spruce trees were probably no closer than 160 km (Bryant and Holloway 1985:53-54). Whether or not pollen data from the Ouachita Mountains are directly applicable to northeastern Texas remains to be demonstrated. As Bryant and Holloway (1985:55) suggest, the changes during this period were probably compositional in that the proportions of certain species increased while others decreased.

The Middle-Holocene Interval, also known as the Hypsithermal or Altithermal (8,500 to 4,000 years ago), was a period of warming and drying which resulted in the expansion of prairie at the expense of forest (Delcourt and Delcourt 1985:19). Recent data from northern Texas suggest that the height of the Altithermal in that area occurred from 7,500 to 4,500 years ago (Ferring 1990:47-48, 1995:30). By 5,000 years ago, the large areas of Mixed Deciduous forest north and west of WOCMA had migrated to the northeast, and the Southeastern Evergreen Forest had shifted from being dominated by xeric species of oak and hickory to being dominated by species of southern pine (Delcourt and Delcourt 1985:Figure 7c, 20).

Recent data from several areas in East Texas suggest that the Altithermal may have had a noticeable effect in that area. A matrix sample of organic carbon from a loamy fluvial deposit in the floodplain of the East Fork of Elliott Creek in Bowie County yielded a middle Holocene age of $6,370 \pm 100$ years: 4,420 B.C., which falls in the middle of the Altithermal (Peter et al. 1991:Appendix H). A $^{13}\text{C}/^{12}\text{C}$ stable isotope ratio of -18.8‰ associated with this sample is heavier than the ratio of -23.5‰ associated with a soil with a modern date from the same area and suggests that C_3 plants were less of a component of the biosphere then than today, with climatic conditions possibly harsher (i.e., warmer and drier). Two buried paleosols in the Sulphur River floodplain in Cass County have yielded dates which also fall within the middle Holocene

(6,540 \pm 90 B.P. and 4,310 \pm 90 B.P.; Cliff and Peter, eds. 1992). One of these two paleosols dates to the middle of the Altithermal, while the other dates just subsequent to its end. The stable carbon isotope ratios for these two soils (-19.9‰ and -23.1‰, respectively) also are heavier than that of the modern soil, and also suggest climatic conditions which were warmer and drier than today, with the harshest conditions present between approximately 6,500 and 6,000 years ago. Further west, carbon isotope data from the Aubrey Clovis site (41DN479) in Denton County and from the Finley Fan site (41HP159) at Cooper Lake on the South Sulphur River also indicate a middle Holocene dry period, but with harsher conditions than in the WOCMA area (Ferring 1995; Gadus, Fields, Bousman, Tomka, and Howard 1992). Geomorphologic data also indicate reduced sedimentation rates and soil formation in the Trinity and North Sulphur River basins, as well as the formation of middle Holocene dune fields in the Upper Trinity Basin (Ferring 1995:30-33). East Texas probably was affected less by the Altithermal than were areas farther west, but it apparently was not entirely unaffected. Delcourt and Delcourt (1985:20-21) suggest that modern conditions, with minor fluctuations, became prevalent subsequent to the beginning of the Christian era.

A relatively recent review of paleoenvironmental data from North Central Texas and the adjacent Southern Plains (Peter and Jurney 1988) suggests that a dry-moist-dry trend in effective moisture occurred between 3,200 and 150 years ago. The initial dry period is projected prior to 1,950 years ago, and a moist period follows until approximately 950 years ago. Between 950 and 700 years ago, drought conditions were prevalent and a drying trend which continues today was initiated. Three paleosols dating to the late Holocene have been identified within the Sulphur River floodplain in Cass County - one of which is very recent (3,480 \pm 80 B.P., 3,030 \pm 100 B.P., and 106.2 \pm .8 percent of modern; Cliff and Peter, eds. 1992). These soils would probably have formed under what were essentially modern climatic conditions, although the earliest late Holocene paleosol appears to have formed under conditions wetter than today, the second under conditions drier than today, and the third under present conditions. The stable carbon isotope ratio for the earliest soil (-24.4‰) suggests a higher component of C₃ plants and moister conditions than today; the ratio for the second soil (-21.9‰) suggests that C₃ plants were less of a component of the biosphere with climatic conditions possibly harsher than today; and the ratio for the recent soil provides a baseline ¹³C/¹²C ratio (-23.5‰) for interpreting the data from the earlier periods.

Although this proposed episodic cycle of late-Holocene climatic change is the most plausible reconstruction at the present time, there remains the problem of regional variability and the specificity of the paleoenvironmental record. The nature and extent of the associated vegetation shifts are very poorly understood. Throughout the entire Holocene, it is probable that the environmental shifts were gradual and variable across the ecotonal border of the eastern forests and the Southern Plains. It is also probable that the border did not shift in the normal sense, but rather that the mosaic of habitat patches changed in character and size. Unfortunately, our understanding of the timing and the nature of the Holocene environmental shifts in Northeast Texas is very generalized at this time and relies too much upon data from other regions which may or may not be applicable. Researchers will need to continue to pursue multiple lines of evidence (palynology, dating, sedimentology, malacology, archeofauna, and stable isotopes) in order to properly model the magnitude and timing of paleoenvironmental shifts in Northeast Texas.

CHAPTER 3

CULTURAL SETTING OF THE PROJECT AREA

by
Maynard B. Cliff

INTRODUCTION

The area of extreme northeastern Texas, which includes the White Oak Creek Mitigation Area (WOCMA), is included within the archeological region known as the Great Bend (Schambach 1982a:1), which takes its name from the Great Bend of the Red River at Fulton, Arkansas. It includes that portion of the Red River drainage between extreme southeastern Oklahoma and the vicinity of Shreveport, Louisiana. As an archeological area, the Great Bend includes portions of Oklahoma, Texas, Louisiana, and Arkansas, and is centered in Arkansas and Louisiana (Schambach 1982a:Figure 1-2). In northeastern Texas, the Great Bend region includes the lower reaches of the Sulphur River and White Oak Creek, on which the proposed WOCMA is located (Figure 3).

The following chapter is intended to provide a general background to the archeology of Northeast Texas, while providing the interested reader with sufficient references for a more in-depth coverage of the topic. The chapter is divided into three sections, the first of which gives a brief summary of previous archeological research carried out within the general area of the Sulphur River basin. The second briefly discusses the nature of the prehistoric and historic Native American archeological records in broad terms, while the third considers the historic Euro-American and African-American settlement in the area.

PREVIOUS ARCHEOLOGICAL RESEARCH

Prehistoric Research

In recent years, several detailed overviews of the development of prehistoric archeology in the WOCMA area specifically (Cliff and Peter, eds. 1992; Perttula 1988a; Peter et al. 1991:Appendix I), and in East Texas in general (Guy 1990), have been written and the interested reader is referred to them for more detail. Organized archeological research in the general region of WOCMA has a relatively long history, going as far back as 1911 with Clarence B. Moore's river boat survey of sites along the Red River in Louisiana, Arkansas, and Texas (Moore 1912; see also Miller 1986 and Schambach 1982a). Moore (1912:637-638) recorded three mound sites in Bowie County, Texas, but he failed to excavate into any of them. Subsequently, in the 1910s and 1920s, J.E. Pearce of the University of Texas (UT) became interested in the archeology of Northeast Texas (Barnard 1939), but it was not until 1931 that the university began an intensive

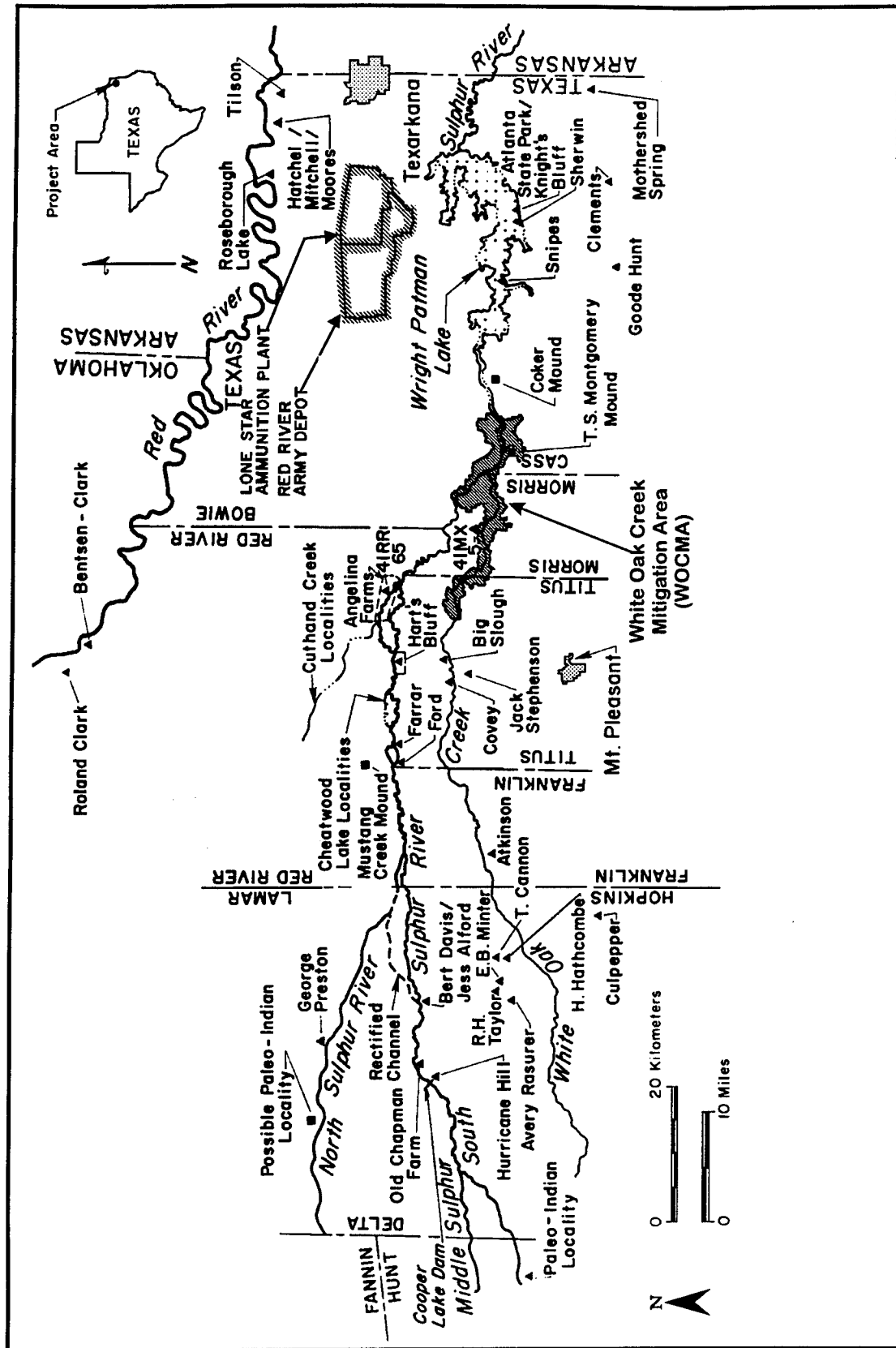


Figure 3. Important archeological sites in the Northeast Texas portion of the Great Bend and the Sulphur River Basin.

program of professional research (Pearce 1932; for specific reports of UT activities see Dickinson 1941; Goldschmidt 1935; Jackson 1932; Krieger 1946; Lewis 1987; Scurlock 1962).

For the four years prior to the outbreak of World War II, the Federal Works Progress Administration (WPA) was active in Northeast Texas, carrying out archeological excavations at several sites, including Hatchel Mound (41BW3) and the Paul Mitchell site (41BW4) (Creel 1984; Davis 1970; Hamilton 1972; Schambach 1982a). At the same time, nonprofessionals and collectors from Dallas and Texarkana also began to excavate into Caddoan mound and cemetery sites in extreme Northeast Texas (see for example, Harris 1953 and Miroir n.d.).

At the end of World War II, and into the 1950s, federal archeology was linked to reservoir salvage programs in a number of states, including Texas. During this period, surveys were carried out at Wright Patman Lake, then known as Texarkana Reservoir, immediately east of WOCMA (Stephenson 1950), and at the proposed location of Cooper Lake, to the west of WOCMA on the South Fork of the Sulphur River (Duffield 1959; Moorman and Jelks 1952). Subsequently, three sites, Knight's Bluff (41CS14), Sherwin (41CS26), and Snipes (41CS8), were excavated at Wright Patman Lake (Jelks 1961); a fourth, the Manton Miller site (41DT2), was tested by the Texas Archeological Salvage Project (TASP) in the area of Cooper Lake (Johnson 1962). At about the same time, the Dallas Archeological Society also undertook limited excavations at the L.O. Ray site (41DT21) along the Middle Sulphur River, within the proposed Cooper Lake (Gilmore and Hoffrichter 1964). Additional limited survey was undertaken at Wright Patman Lake in 1970, in response to proposed changes in the lake level (Briggs and Malone 1970), while between 1970 and 1976, Cooper Lake was the focus of a program of intensive survey and excavation by Southern Methodist University (Doehner and Larson 1978; Doehner et al. 1978; Hyatt and Doehner 1975; Hyatt and Skinner 1971; Hyatt et al. 1974; for a detailed discussion of the results and significance of this research program, see Bousman et al. 1988:13-36). At the same time, crews from East Texas State University surveyed portions of Franklin, Morris, Red River, and Titus counties (East Texas State University 1971:50-84), while Milton Bell, of the Texas Highway Department surveyed portions of Cass, Morris, and Titus counties (Bell n.d.). Bell's work is especially important for the WOCMA area since he surveyed a portion of the White Oak Creek drainage and recorded over 50 prehistoric sites, many of which date subsequent to A.D. 800 (Perttula 1988a:14). In fact, a few of Bell's sites in Morris (41MX13 and 41MX15) and Titus (41TT80 and 41TT82) counties fall within or adjacent to WOCMA (Peter et al. 1990).

In the 1960s, limited efforts to salvage archeological data were carried out at several eroding Caddoan sites along the Red River, specifically in Bowie and Red River counties. Generally this work was sparked by the need to salvage mortuary features, such as single burials (Brickey n.d.), larger shaft burials (Banks and Winter 1975), and even mounds (Skinner et al. 1969). These salvage efforts continued in the 1970s, as much in response to increased pothunting and grave robbing as to erosion, and included feature recording at the Tilson site (41BW14) in Bowie County (see Creel and Fields 1979). Partially as a result of this latter work, a conservation easement was obtained on the Tilson site by the Archaeological Conservancy while portions of the Hatchel site were obtained by the General Land Office of the State of Texas (Perttula 1988a:14). More extensive archeological research north of WOCMA on the Red River during the 1970s and 1980s included survey and testing along Big Pine Creek in Red River and Lamar counties (Mallouf 1976) and excavations by the Museum of the Red River at the Bob Williams, Holdeman (41RR11), and Rowland Clark (41RR77) sites (Perino 1983, 1994) and by the University of North Texas (UNT) at the Roseborough Lake site in Bowie County (Gilmore 1986; for more on this important contact site, see Miroir et al. 1975). At this same time, UNT instituted the Red River Archaeological Project, whose explicit goal was to develop a predictive model for prehistoric site location within the Red River basin in Bowie, Red River, and Lamar counties (Gilmore and McCormick 1980, 1982).

In 1986, plans for construction of Cooper Lake were revived after being suspended in the 1970s, and a new phase of research began upstream from WOCMA, in the Sulphur River basin (see Bailey et al. 1991; Bousman et al. 1988; Cliff, Green, Hunt, and Shanabrook 1995; Fields et al. 1991, 1993, 1994; Gadus et

al. 1991; Gadus, Fields, and Bousman 1992; Gadus, Fields, Bousman, Tomka, and Howard 1992; Journey and Bohlin 1993; Journey et al. 1993, 1995; Lebo 1988; Perttula 1988a, 1989, 1990; Perttula, ed. 1989; Winchell et al. 1992). From 1986 on, three separate research groups have been involved with prehistoric investigations at Cooper Lake (Bailey et al. 1991:Table 1). Between 1986 and 1987, UNT surveyed the Cooper Lake embankment area (Perttula 1988b) and subsequently carried out extensive excavations at the Hurricane Hill site (41HP106) (Perttula 1990). Between 1987 and 1989, the Archaeology Research Program of Southern Methodist University (SMU) surveyed much of the remainder of the lake area (Journey and Bohlin 1993; Journey et al. 1993, 1995), tested a number of prehistoric sites, and excavated four of them (Journey et al. 1995), including Lawson (41HP78), Thomas (41DT80), Doctors Creek (41DT124), and 41HP137 (Cliff 1995; McGregor 1995; Martin 1995a, 1995b). Finally, beginning in 1990, Prewitt and Associates, Inc., surveyed small portions of the lake and park areas, tested or reevaluated over a dozen sites, and excavated six prehistoric sites (Bailey et al. 1991; Fields et al. 1994; Gadus et al. 1991; Gadus, Fields, and Bousman 1992; Gadus, Fields, Bousman, Tomka, and Howard 1992). More recently, Geo-Marine, Inc. (GMI), has undertaken test excavations at two prehistoric sites (Cliff, Green, Hunt, and Shanabrook 1995).

Closer to WOCMA, recent archeological activities have included the 1987 excavation by the Texas Department of Highways and Public Transportation of a small Caddoan hamlet and cemetery at the Murphy Branch site (41MX5), north of White Oak Creek (Brewington et al. 1995); survey and testing along Little Mustang Creek and Cuthand Creek in Red River County, including work at the Cheatwood Place (41RR181) on Little Mustang Creek (Gaither et al. 1991; Perttula 1988a:15); and survey by UNT of pipelines in the Sulphur River and Cypress Bayou basins, and in Lamar County in the Red River basin (Perttula and Nathan 1989; Perttula et al. 1989). In 1988, a series of cultural resource studies began at the Red River Army Depot (RRAD) and the Lone Star Army Ammunition Plant (LSAAP) in central Bowie County northeast of WOCMA, and has included surveys (Cliff and Peter, eds. 1994; Newman 1988; Peter and Cliff, eds. 1990a, 1990b), limited testing (Cliff and Peter, eds. 1988), and the preparation of a cultural resource overview of Bowie County and the Great Bend in general (Peter et al. 1991:Appendix I).

In mid-June of 1991 and 1992, the Texas Archeological Society (TAS) conducted field school excavations under the direction of staff members of the Texas Historical Commission (THC) at several sites in the vicinity of the E.A. Roitsch (or Sam Kaufman) site in Red River County, north of WOCMA (Bruseth 1992; Bruseth et al. 1991:1, 6-9; Martin 1992; Prikryl 1992; THC 1991:11-13). This research program included excavations at the Fasken Mounds (41RR14), the Ray site (41LR135), Salt Well Slough (41RR204), and the E.A. Roitsch site itself. Also as part of this research effort, survey operations were conducted within the Big Pine Creek drainage to the west, recording or rerecording 70 sites (THC 1991:13). To the west of WOCMA, in Titus and Franklin counties, extensive cultural resource investigations have been undertaken by Espey, Huston and Associates, Inc., in association with surface coal mining projects. At the Monticello B-2 Mine, north of Mount Pleasant, survey of approximately 20,000 acres resulted in the recording of 237 prehistoric and historic archeological sites (Jones et al. 1989). Subsequently, testing was conducted at six prehistoric sites (41TT154, 41TT370, 41TT372, 41TT373, 41TT550, and 41TT555) in 1991 (Kotter et al. 1993), and an additional 10 sites (41TT392, 41TT396, 41TT398, 41TT399, 41TT400, 41TT406, 41TT409, 41TT413, 41TT600, and 41TT601) in 1993 (Nash et al. 1995). On the basis of this work, data recovery was conducted at sites 41TT372 and 41TT550 in 1993 (Dixon et al. 1995). Elsewhere in Titus County, survey of 2,716 acres at the Monticello I Area, southwest of Mount Pleasant, recorded another 22 prehistoric and historic sites (Hoyt et al. 1994). Finally, data recovery excavations were recently undertaken at site 41BW422, along Barkman Creek north of Hooks in Bowie County, northeast of WOCMA (Tucker 1994).

Historic Period Research

A concern for historic Euro-American and African-American archeological remains in Northeast Texas is an extremely recent development compared to prehistoric research in the area. Prior to the 1970s, historical archeological and architectural sites in Northeast Texas generally were not considered to have a significant

research potential (Perttula 1988a:16). In the general vicinity of WOCMA, archeological investigations conducted at the Roseborough Lake site in 1976 by UNT resulted in the identification of architectural remains from the early 1800s (Gilmore 1986:22). At about the same time, the UNT Red River Archeological Project recorded a number of historic archeological sites dating to the nineteenth and twentieth centuries along the Red River in Bowie, Red River, and Lamar counties (Gilmore and McCormick 1980, 1982).

In the mid-1980s, the archeological investigations associated with the revival of the plans for Cooper Lake included a program of research into the Euro-American and African-American archeology of the area, separate from that oriented toward the Native American remains. As part of this research, UNT tested four late nineteenth-early twentieth century sites within the embankment area in 1986 (Perttula 1989) and conducted excavations at the James Frank site (41DT97) overlooking Doctors Creek (Perttula, ed. 1989). Subsequently, SMU conducted its own program of intensive survey, testing, and excavation (Jurney 1995; Jurney and Bohlin 1993; Jurney et al. 1993), while two historic cemeteries, Tucker (41DT104) and Sinclair (41DT105), were investigated as part of cemetery relocation (Lebo 1988; Winchell et al. 1992). Smaller surveys were also carried out by the U.S. Army Corps of Engineers, Fort Worth District (McGregor and Roemer 1989) and by Prewitt and Associates, Inc. (Bailey et al. 1991). In 1993-1994, GMI undertook data recovery at three historic sites (41DT192, 41DT208, and 41DT249) at Cooper Lake (Shepard et al. 1994).

Closer to WOCMA, an archeological and endangered wildlife survey of a proposed transmission line right-of-way across the southeastern portion of the RRAD/LSAAP, conducted by Espey, Huston and Associates, Inc. (1980), recorded five historic period properties, while UNT recorded a number of historic sites and localities as a result of pipeline surveys in the Sulphur River and Cypress Bayou basins and in Lamar County. A concerted program of historic research is also an integral part of the ongoing cultural resources program at the RRAD/LSAAP, north of WOCMA (Cliff and Peter, eds. 1988, 1994; Peter and Cliff, eds. 1990a, 1990b). Also, for the first time in this area, a large amount of archival and chain-of-title data was generated for a number of historic period sites.

Previous Research at WOCMA

GMI's research at WOCMA began in 1990, with the production of a research design for the cultural resources studies to be conducted there (Peter et al. 1990). This research design presented a number of research problems applicable to WOCMA as a whole, and discussed the known sites within WOCMA at that time. These included possible site occupations dating to the Paleo-Indian (41TT80 and 41TT82); Archaic (41CS3, 41MX13, 41MX15, 41MX24, 41TT80, and 41TT82); and Early Ceramic/Caddoan (41CS3, 41CS4, 41CS5, 41CS126, 41MX5, 41MX13, 41MX15, 41MX25, 41MX26, 41TT80, and 41TT82) periods.

The first phase of survey work for the WOCMA project was undertaken in 1990 and included the intensive pedestrian survey of 430 acres of upland edge and the geoarcheological survey of portions of the adjacent floodplain within the Moist Soils Management Area (MSMA) south of the Sulphur River in Cass County. Sixteen cultural resource sites were located. Identified prehistoric components included Late Paleo-Indian, Early-Middle Archaic, Late Archaic, Early Ceramic, and Caddoan, with Caddoan occupations comprising 30 percent of the total (Cliff and Peter, eds. 1992).

The second phase of survey was undertaken between 1990 and 1992, with such an extended period being partially caused by delays in purchasing the property and partially due to the difficulties encountered by the field crews in gaining access to the property due to inclement weather. During this phase approximately 4,000 acres were surveyed, which resulted in the recording of 57 sites (four previously recorded and 53 previously unrecorded). Prehistoric components identified included Middle and Late Archaic, Early Ceramic, and Caddoan, while sites of Protohistoric and Historic periods were also discovered (Cliff, ed. 1994).

In 1992-1993, test excavations were undertaken at four of the sites discovered during the MSMA survey, namely, 41CS150, 41CS151, 41CS155, and 41CS156, with the latter two sites being combined on the basis of testing data (Cliff and Hunt 1995). The testing results showed that all of the sites were eligible for nomination to the National Register of Historic Places (NRHP). Since a portion of site 41CS151 was to be impacted by the proposed development of the MSMA, mitigation was recommended for the relevant portion of the site, and extensive block excavation and machine scraping were carried out here in 1993 (Cliff, Green, Hunt, Shanabrook, and Peter 1995).

NATIVE AMERICAN CULTURE HISTORY

The following brief discussion of the prehistoric archeological record in the vicinity of WOCMA in Northeast Texas draws from previous summaries by Perttula (1988a), Story (1981, 1990), and Thurmond (1990). Following Kenmotsu and Perttula (eds. 1993), the period of Native American occupation in Northeast Texas has been subdivided into eight temporal divisions, with the later periods being the best dated (Table 1).

Table 1
Native American Cultural Sequence for the Great Bend Region of Northeast Texas

Temporal Period	Date
Paleo-Indian	9500 - 7000 B.C.
Archaic	7000 - 200 B.C.
Early Ceramic	200 B.C. - A.D. 800
Formative Caddoan	A.D. 800 - 1000
Early Caddoan	A.D. 1000 - 1200
Middle Caddoan	A.D. 1200 - 1400
Late Caddoan	A.D. 1400 - 1680
Historic Caddoan	A.D. 1680 - 1860

Paleo-Indian Period

The Paleo-Indian period in Northeast Texas (ca. 9500-7000 B.C.) generally includes those remains of human presence which can be dated to the very late Pleistocene and the immediate post-Pleistocene periods (for recent reviews of this period in Northeast Texas, see Johnson 1989; Peter et al. 1991:Appendix I; and Story 1990). As a matter of convenience, the period can be subdivided into an early Paleo-Indian period (ca. 9000-8500 B.C.) and a late Paleo-Indian period (8500-7000 B.C.). Unfortunately, although numerous diagnostic projectile points, such as Clovis, Plainview, Dalton, Scottsbluff, and San Patrice, have been recovered as isolated surface finds or in later excavated contexts (Carley n.d.; Perttula 1988a:17), few Paleo-Indian sites in good stratigraphic context have been found (Perttula 1988a:17; Preston 1972, 1974), and fewer have received any sort of systematic excavation. Both Perttula and Story have noted the possible presence of horizontally stratified early Paleo-Indian deposits at the Forrest Murphey site (41MR62), at Lake O' the Pines, but the site was reportedly destroyed by dam construction before being excavated (Perttula 1988a:17; Perttula et al. 1986:47; Story 1990:184-185). The situation of the Murphey site, and the discovery of the deeply buried Clovis-age Aubrey site (41DN479), along the Elm Fork of the Trinity River in North Central Texas (Ferring 1989, 1990), suggests that well-preserved Paleo-Indian sites in Northeast Texas will only be

found by examining deeply stratified terraces or by penetrating more recent Holocene alluvium in modern floodplain situations.

Despite the lack of good data relating to the early Paleo-Indian period in Northeast Texas, some attempts have been made to generalize regarding settlement mobility and intensity of site occupation, drawing on what little is known and on assumptions based on comparisons with other areas. For instance, a number of researchers have seen evidence for a high degree of group mobility in the broad distribution of Paleo-Indian artifacts over the landscape and in the variety of presumably nonlocal lithic raw materials from which the artifacts were made (Meltzer and Smith 1986; Shafer 1977; Story 1990:177). Likewise, the well-documented exploitation of large megafauna by Paleo-Indians in the western United States, coupled with the known presence of similar species in Northeast Texas between 11,000 and 9,000 years ago (see Hemmings 1983; Slaughter and Hoover 1963), has resulted in the popular (and logical) conclusion that "big game hunting" was part of the Paleo-Indian subsistence strategy in Northeast Texas. Certainly, a possible association between a Clovis point and mastodon remains at the Murphey site (Story 1990:185) supports this likelihood, but increasing evidence from sites to the west (such as the Aubrey site) indicates that Paleo-Indian groups were less dependent upon "big game hunting" than has been assumed in the past.

The late Paleo-Indian period in the Great Bend region appears to be distinguished by the divergence of the earlier, widespread fluted point tradition into several distinctive subtraditions. The first of these includes Scottsbluff, Plainview, and similar lanceolate points which appear to be part of a more western, or "plains-derived" subtradition in terms of origin and style; the second includes Dalton and Dalton-related projectile points which have a wide distribution throughout the wooded southeastern and midwestern United States. Some researchers have suggested that this Dalton horizon represents an adaptation to the changing environment at the end of the Pleistocene (Goodyear 1982:389-391), a view that has found some support in the addition of a presumed "heavy, woodworking tool, the Dalton Adz," to what otherwise is viewed as a Paleo-Indian tool kit (Kelley et al. 1988:21). San Patrice, an important complex which may be related to Dalton, is found in eastern Texas, southeastern Oklahoma, northern Louisiana, and southern Arkansas, and is characterized by San Patrice points, Keithville points, and the so-called Albany Scraper (Ensor 1987; Schambach 1979; Webb et al. 1971).

In the WOCMA vicinity, apparent Paleo-Indian materials have been recorded at Wright Patman Lake to the east (Briggs and Malone 1970) and at the Keelan site (41BW12) on Barkman Creek to the northeast. Test excavations at site 41BW182 on the RRAD yielded a Plainview point in mixed context (Cliff and Peter, eds. 1988:48), while within the LSAAP, Plainview points have been reported from two unrecorded sites (Newman 1988). Within WOCMA itself, two possible Paleo-Indian components are reported in Titus County. At site 41TT80, north of White Oak Creek, an apparently mixed collection is reported to include "paleo-like dart points" (Bell n.d.); while at site 41TT82, "Plainview-like" and "Meserve" points are specifically listed as part of a mixed collection (Bell n.d.). More recently, survey and excavation in the eastern portion of WOCMA, in Cass County, have yielded Dalton/Meserve, San Patrice, and Keithville points from one site (41CS151), and an end scraper apparently refashioned from a Dalton point from another (41CS155/156). Unfortunately, none of these artifacts appear to be in intact Paleo-Indian context (Cliff and Hunt 1995; Cliff and Peter, eds. 1992).

Archaic Period

The Archaic period in Northeast Texas is tentatively dated between 7000 and 200 B.C. As is true for many areas, a threefold division of the Archaic period, consisting of early, middle, and late "subperiods" has been applied in Northeast Texas. Although reliable dating for the Archaic period in this area is virtually nonexistent, these divisions have been given tentative dates on the basis of better dated sites in surrounding areas. Thus the Early Archaic has been dated from 7000 to 4000 B.C., the Middle Archaic from 4000 to 2000 B.C., and Late Archaic from 2000 to 200 B.C. (recent overviews which cover the Archaic in this

portion of Texas include Peter et al. 1991:Appendix I; Story 1985, 1990; and Fields and Tomka 1993). Archaic remains are usually found in upland settings and are frequently mixed with later material (Campbell et al. 1983; Story 1981). General trends which have been proposed as characterizing the Archaic period in Northeast Texas include an increasing complexity of settlement systems, increasing population size and density, increasing sedentism, and the development of distinct group territories (Perttula 1988a:17; Story 1985:52). Despite these changes, however, no evidence of any level of food production (even incipient production) has been reported from any Northeast Texas Archaic site (Perttula 1988a:17; Story 1990:Table 56), in spite of the fact that definite steps toward food production were being taken elsewhere in the eastern United States (Ford 1985:347-349; Watson 1988).

During the Early Archaic (ca. 7000-4000 B.C.), the occurrence of small and widely distributed sites has been suggested to reflect high group mobility within large and poorly defined territories, with a generalized hunting and gathering economy (Meltzer and Smith 1986; Story 1985:35, 39). Projectile point forms which may be associated with the Early Archaic in Northeast Texas include Kirk, Keithville, Palmer, Cossatot, Dawson, and Wells (Story 1990; Thurmond 1990). In comparison to the Early Archaic, the Middle Archaic period in the Great Bend area (4000-2000 B.C.) appears to be characterized by: (1) an increased diversity of tool types; (2) greater interregional variability; (3) the addition of ground, pecked, and polished stone tools; and (4) an increased use of plant foods, as indicated by the addition of mortars, pestles, and mealing stones (Neuman 1984:77, 79). The dependence upon abundant forest resources (e.g., oak mast production, deer, and small mammals) which are evenly distributed over most of the region probably resulted in evenly distributed population densities and favored the development of exclusive or "fixed" territories (Plog and Upham 1983:202; Story 1985:41). Although grinding stones apparently were introduced during the Early Archaic period, it was not until the Middle Archaic that their use became widespread. Grinding and polishing were used to produce grooved axes, atlatl weights, and ground stone pendants at this time. Diagnostic dart points which may be associated with the Middle Archaic include Big Sandy, Calf Creek, Johnson, Carrollton, Morrill, Evans, Lone Oak, Trinity, and Wesley (Story 1990; Thurmond 1990).

Population density may have reached a peak during the Late Archaic period in Northeast Texas (ca. 2000-200 B.C.), as evidenced by an apparent increase in the number of sites, a greater distribution of sites over the landscape, and evidence of increasing degrees of sedentism. At the same time, group mobility may have become more limited and interregional contact may have become increasingly common. If greater spatial dispersal of sites is not a result of sampling error due to unequal destruction or burial of earlier sites, it may reflect an economic system making increasing use of all available floral and faunal resources. Unfortunately, the economic data to support this view are generally absent. Throughout the Great Bend region, Late Archaic period occupation sites are relatively common in the uplands and a number are known from the floodplain of the Red River, although no regional phases have yet been identified (Schambach 1982a:3-6). Dart points which may be diagnostic of the Late Archaic include Lange, Castroville, Ellis, Palmillas, Edgewood, Yarbrough, Ensor, and Kent (Story 1990; Thurmond 1990).

Early Ceramic Period

In Northeast Texas, the Early Ceramic period (200 B.C.-A.D. 800) is generally not well defined and is largely identified by similarities in pottery and projectile points to sites of the Fourche Maline tradition north of the Red River (recent overviews which provide good information for this period include Perttula et al. 1993; Peter et al. 1991:Appendix I; and Story 1990). Diagnostic artifacts consist of coarse plainware ceramics, tempered with either clay/grog or bone, and Gary projectile points. The ceramics generally are grouped together as Williams Plain; but, given the wide range of temporal and spatial variability present, they should probably be viewed as one or more undefined varieties of that type. Elsewhere in Texas, sandy paste ceramics (cf. Bear Creek Plain and Goose Creek Plain) appear to be common on Early Ceramic period sites from the Sabine River south to the Gulf Coast (Story 1981:146). Discounting ceramic differences at the varietal level, the remains of the Early Ceramic period in Northeast Texas, however, seem to be most

closely related to Schambach's (1982b:188) Fourche Maline tradition in Arkansas. Despite other similarities to Fourche Maline, no Early Ceramic period burial mounds are known in the Texas portion of the Great Bend. The few that are known in East Texas occur to the south, in the Sabine and Neches river basins around the Toledo Bend and Sam Rayburn areas (see Story 1990:Figure 41), and at the Coral Snake (16SA48) and Jonas Short (41SA25) mound sites (Jensen 1968; McClurkan et al. 1966, 1980). The lack of such evidence in Northeast Texas leaves open the question of whether or not this area was undergoing the same processes of cultural evolution presumably responsible for the development of burial mound building elsewhere (see Perttula 1988a:18; Story 1990).

Perttula (1988a:18) has noted what appears to be a concentration of Early Ceramic period sites within the Sulphur River basin, although this may be more the result of intensity of research or factors of site preservation rather than the actual presence of an unusually large Early Ceramic population. In regard to modeling settlement patterns during this period, Perttula (1988a:18) suggests that "Early Ceramic or Fourche Maline settlements are . . . represented by villages and hamlets in the floodplains or terraces of larger streams, and by smaller components in the uplands." Many of the sites on which Perttula bases this model, including Snipes at Wright Patman Lake (Jelks 1961) and Tick, Thomas, Hurricane Hill, and Lawson at Cooper Reservoir (Doehner and Larson 1978; Martin 1995b; Perttula 1990), contain middens which are taken as indicating a more sedentary settlement pattern than that of the preceding Archaic period. Two apparent pits (Features 1 and 2) radiocarbon dated to the Early Ceramic period (1460 ± 60 B.P., and 2090 ± 30 B.P., respectively) at 41HP137 at Cooper Lake yielded hickory nut, acorn, wild tubers (possibly the Prairie turnip, *Pedimelum* or *Psoralea* sp.), and what may be fragments of cultivated squash or gourd (Fields et al. 1994:12; McGregor 1995:358).

Formative and Early Caddoan Periods

The Formative (A.D. 800-1000) and Early Caddoan (A.D. 1000-1200) periods in northeastern Texas are not well defined. Ceramics for both of these periods include Hickory Fine Engraved, Carmel Engraved, Crockett Curvilinear Incised, and Pennington Punctated-Incised (Thurmond 1990:Table 8). Thurmond has further distinguished between equivalents of these two periods on the basis of the presence of Davis Incised, Holly Fine Engraved, Kiam Incised, Spiro Engraved, and Weches Fingernail Impressed in the earlier (along with some late varieties of Coles Creek types); and Canton Incised, Haley Engraved, Maxey Noded Redware, Sanders Engraved, and Sanders Plain in the later, although some researchers are more inclined to put the latter four types in the Middle Caddoan period.

The Formative and Early Caddoan periods are characterized by what may best be termed the Alto complex or Alto sphere, a widespread manifestation related to the Alto phase, originally defined at the George C. Davis site in Cherokee County, Texas, south of the Great Bend area (Newell and Krieger 1949). The Alto complex shows strong influence from Coles Creek culture and appears to partially overlap it in time. However, it also shows a number of new characteristics (Neuman 1970), including new projectile point types (i.e., Hayes and Homan arrow points), new ceramic vessel forms (i.e., the carinated bowl and the bottle), and new modes of vessel decoration (i.e., fine engraving with red pigment filler).

It has been suggested that these and other cultural innovations, including the introduction of the bow and arrow and increased food production based on maize, appear to have led to increases in population and sociopolitical complexity during these periods (Perttula 1988a:18). The settlement system became increasingly complex, apparently involving sedentary villages and farmsteads, special function sites (what Binford [1980] has called logistical camps), and the mound centers, which were presumably ritual or ceremonial in function (see Perttula 1988a:18-19). A number of such mound centers dating to the Formative and Early Caddoan periods occur within the vicinity of WOCMA, including the T.M. Coles or Mustang Creek Mound (Jackson 1931) on a tributary of the Sulphur River to the west, and several mounds at Wright

Patman Lake (Stephenson 1950). Further removed from WOCMA, many more mound sites occur along the Red River and its immediate tributaries to the north (Banks 1983; Miller 1986; Taylor 1949).

Middle Caddoan Period

The Middle Caddoan period (A.D. 1200-1400) in the Great Bend region includes what is known as the Haley phase, the definition of which is based generally on mortuary data, largely from C.B. Moore's excavations at the Haley site in Arkansas (3MI1; Moore 1912). The Haley phase appears to represent a development out of the earlier Alto complex and continuities from the earlier period include the use of shaft grave burials for some members of the society, who were accompanied into the afterlife by relatively rich grave offerings (Kelley et al. 1988:26). This phase was centered in the Great Bend area in Arkansas, but northwestern Louisiana and northeastern Texas did fall within its peripheral influence and a Haley phase component has been recognized at the Hatchel site in Bowie County (Davis 1970:44). Despite its presence in Texas, however, the Haley phase was apparently most fully elaborated in the Arkansas portion of the Great Bend.

Most of the well-known Haley phase components, especially in Arkansas, relate to mound centers, although it is unclear whether all of them were associated with villages or not (Wyckoff 1974). One well-investigated nonmound habitation site is known from Arkansas, apparently a small farmstead located on "a natural levee" or "high ground overlooking riverine bottom lands" (Wyckoff 1974:106, 113). The site contained two circular house structures and a small trash dump, and has suggested to some that the Haley phase settlement pattern involved small, dispersed farmsteads surrounding vacant ceremonial centers (Hoffman 1970). However, Wyckoff (1974:107) also notes the existence of mound centers with "potentially large villages," as well as nonmound cemeteries located close to mound centers. Finally, he states that

[t]here is certainly an overall tendency for the Haley components, mound centers and non-mound habitation areas alike, to associate with a riverine valley setting. Most of the mound centers did occur in the valleys of major streams, but [some mound centers] were on the floodplains of streams tributary to the major rivers [Wyckoff 1974:112].

In regard to sociopolitical organization within Haley phase society, the complexity of the mortuary ceremonialism and apparent status ranking evident in the burials recovered from Haley phase sites, as well as the presumed organizational control necessary to construct the mound centers, strongly suggests that there was "a political and religious hierarchy that operated throughout the Haley Focus [sic] society" (Wyckoff 1974:110).

Late Caddoan Period

The Late Caddoan period (A.D. 1400-1680) includes the final part of the prehistoric period and the initial years of European contact (for the most recent overview of this period and the subsequent Historic Caddoan period, see Pertulla 1992). The survivors of the de Soto entrada apparently entered Northeast Texas about midway through the Late Caddoan period and the latter part appears to have overlapped with the initial movements of European explorers and traders into northeastern Texas.

In the lower Sulphur River basin in Northeast Texas, two archeological complexes have been defined for the Late Caddoan period, the Titus phase and the Texarkana phase (Schambach 1982a; Thurmond 1985). The Titus phase appears to be largely located south and west of WOCMA, centering in Titus and Camp counties. The Texarkana phase is located in the upper portion of the Great Bend of the Red River and extends southward to include a portion of the lower Sulphur River drainage (Wyckoff 1974:Figure 4). The definition of the Texarkana phase is based largely on WPA excavations conducted at the Hatchel mound and at the Mitchell and Moores cemeteries situated on the Red River northwest of Texarkana (Davis 1970:50-51).

Texarkana phase sites such as Knight's Bluff and Sherwin on the lower Sulphur River probably existed as satellites to these large, permanent settlements on the Red River (Perttula 1988a).

Both the Titus and Texarkana phases appear to be characterized by small hamlets or farmsteads which were probably occupied by small family groups of shifting agriculturalists. These farmsteads were apparently characterized by a limited number of structures and a small family cemetery (see Brewington et al. 1995; Jelks 1961; Perttula 1988a). They presumably were associated with larger, more permanent suprahousehold sites (both mound centers and nonmound cemeteries) which served to integrate the scattered households into a united social group. In the case of the Titus phase, this function appears to have been served solely by large mortuary sites which served as cemeteries for a portion of the society. In contrast to this, the Texarkana phase appears to have retained the older pattern of mounded ceremonial centers, such as the Hatchel site.

Historic Caddoan Period

The Historic Caddoan period (A.D. 1680-1860) began with the explorations of the survivors of la Salle's Texas colony and ended with the expulsion of the Caddo from Texas in 1859. During the closing decades of the seventeenth century, Sieur Henri de Tonti, Bienville, and St. Denis traveled through the upper Red River valley and made contact with the Native Americans residing in the area. The primary Native American groups inhabiting the Great Bend region at that time consisted of Caddoan speakers, presumably descendants of groups which had inhabited the area at least as far back as A.D. 800. The groups which appear to have been closest to WOCMA comprised the Kadohadacho Confederacy (Swanton 1946:141).

The Kadohadacho Confederacy was originally composed of five groups: the Kadohadacho, the Petit Caddo, the Upper Natchitoches, the Upper Nasoni, and the Nanatsoho. According to Williams (1974:286), the Upper Yatasi and the Cahinnio joined the Confederacy at a later time, possibly in the early eighteenth century in the case of the Cahinnio and in the 1760s in the case of the Yatasi. The Confederacy apparently controlled the entire Texas portion of the Great Bend region. Don Domingo Terán de los Rios, who in 1692 visited one of the Kadohadacho villages located just above the Great Bend of the Red River near present-day Texarkana (Swanton 1946:57), noted that their power extended as far south as Big Cypress Bayou, south of the Sulphur River, which he described as emptying into a lake system which *belonged* to them (Hackney 1966:3). The origins of the Confederacy are unknown at present, but it may have arisen as a result of what was probably a severe demographic impact resulting from the de Soto entrada (see Smith 1989).

Between 1788 and 1800, the groups of the Kadohadacho Confederacy were forced south into Louisiana by the severity of Osage raids (Smith 1995:82-83; Williams 1974:297). At that time, they settled on Caddo Lake about 35 miles west of the main branch of the Red River (Smith 1995:83) where they were encountered by Freeman and Custis in 1806 (Flores, ed. 1984:16, fn 3). The Kadohadacho remained in this area until they agreed to leave Louisiana and enter Texas following the signing of the Caddo Treaty of 1835 (Williams 1974:309). By 1854, they were residing, along with other Native American groups, on a tract of land on the Brazos River in North Central Texas which had been selected for them (with their help) by the federal government. Subsequently, they were moved to what was then Indian Territory in 1859 (Swanton 1946:99).

After the abandonment of the Great Bend region by the Kadohadacho in 1790, groups of displaced Native Americans from east of the Mississippi River began to move into Caddoan territory in Spanish Texas. These movements were in response to the increasing pressure to give up their traditional livelihoods and become incorporated into Anglo-American culture (Everett 1990). The Spanish initially welcomed these groups with the idea of using them to create a "buffer" between the Spanish settlements and the land-hungry North Americans. Unfortunately, as more of these groups (such as the Choctaw, Delaware, Quapaw, Shawnee, Cherokee, and Alabama-Koasati) moved into East Texas, they began increasingly to compete with the Caddo for a diminishing resource base. This problem simply became exacerbated following the sale of Louisiana

to the United States, when North Americans began moving into Northeast Texas as well (Perttula 1988a:21), and was not ultimately resolved until both the Caddo and the immigrant groups were expelled following the Texas Revolution.

EUROPEAN AND AMERICAN HISTORICAL BACKGROUND

The period of European exploration and settlement, and the subsequent North American and African-American development of Northeast Texas is briefly covered in the remaining portions of this chapter. For more extensive treatments of this period in Northeast Texas see Peter and Cliff (eds. 1990a: Chapters 3 and 7) and Peter et al. (1991: Appendix J). For purposes of ease of presentation, the European and American history of the region has been subdivided into five periods:

1. European Exploration and Colonization (1542-1803);
2. Initial North American Settlement and Growth (1804-1860);
3. Civil War and Aftermath (1860-1870);
4. Initial Commercialization (1870-1920); and
5. Depression and Recovery (1920-present).

European Exploration and Colonization, 1542-1803

The initial European penetration into the general area of Northeast Texas occurred in the middle of the sixteenth century when the survivors of the de Soto entrada, led by Lu s de Moscoso de Alvarado, entered Texas in their attempt to reach New Spain by land (Bruseh and Kenmotsu 1991; Weddle 1985). Recent reconstructions of the Moscoso route through Texas (Bruseh and Kenmotsu 1991) equate the province of *Naguatex* with the Hatchel-Mitchell-Moores site complex in northern Bowie County, suggesting that from here the entrada moved southwest through Bowie County to cross the Sulphur River somewhere in the vicinity of Douglasville, where Wright Patman Lake now is located, to the east of WOCMA.

In 1719, the Frenchman Jean-Baptiste B nard de la Harpe traveled up the Red and Sulphur rivers from the French outpost at Natchitoches and founded a trading post among the Nasoni, probably in the vicinity of the Eli Moores site in Bowie County (Gilmore 1986; Wedel 1978). The Nassonite Post (as la Harpe's trading post has come to be known) may have been vacant or intermittently garrisoned after 1726, and then reestablished and relocated, probably at the Roseborough Lake site, in about 1731-1733 by Alexis Grappe (Gilmore 1986). This later post was garrisoned until sometime around 1778 when it was finally abandoned completely (Miroir et al. 1975:162).

Initial North American Settlement and Growth, 1804-1860

Following the sale of Louisiana to the United States in 1803, North American immigration into Northeast Texas intensified, although for a number of years it was not clear who actually owned the area south of the Red River. The United States considered it (and indeed, most of Texas) to be part of Louisiana and encouraged settlement of the area (Chandler and Howe 1939). Spain, on the other hand (and later Mexico), was violently opposed to this view, and at several times during the first few decades of the nineteenth century, the dispute nearly led to war (Smith 1991). The first official North American penetration of the region was by the Freeman-Custis Expedition of 1806, which was turned back at Spanish Bluffs, almost due north of WOCMA on the Red River, by a Spanish military force (Flores, ed. 1984).

Despite Spain's claim, Northeast Texas was too close to the United States not to fall into the North American orbit of influence and settlement continued. The earliest settlements were confined to the areas immediately

adjacent to the Red River, but after 1818, settlement pushed into the prairies along river tributaries and early roads, such as Trammel's Trace and Dayton's Road. Trammel's Trace, a popular immigrant route into Texas after 1813, crossed the Sulphur River at Epperson's Ferry, downstream from WOCMA, and continued southwest through Cass County to Hughes Springs, founded in 1839, and then south to cross Cypress Bayou two miles west of Jefferson (Webb and Carroll, eds. 1952:2:793-794). Dayton's Road was a major east-west overland route which ran north of WOCMA along the divide between the Sulphur and Red rivers.

The 1830s and 1840s were a period of steady population growth in this area of northeastern Texas. During the Republican period, the area of modern-day Bowie, Cass, Morris, and Titus counties was included first within Red River County (organized in 1836) and then within Bowie County after 1840. Cass and Titus counties were detached from Bowie County in 1846, while Morris County was created out of Titus County in 1875 (Webb and Carroll, eds. 1952:1:198; 2:238). Bowie County was named for Jim Bowie; Cass County for Lewis Cass, United States senator from Michigan who had favored the annexation of Texas (Webb and Carroll, eds. 1952:1:306); and Titus County for Andrew J. Titus, an early Texas legislator from Red River County (Webb and Carroll, eds. 1952:2:782-783). Morris County probably was named for W.W. Morris, another early state legislator and judge from Northeast Texas (Webb and Carroll, eds. 1952:2:238).

The original North American settlers in the area were apparently largely subsistence farmers residing on small holdings, with an economy reportedly based on grain and livestock production (Peter and Cliff, eds. 1990a:36). The commercial production of cotton apparently was not introduced until the 1830s (Fehrenbach 1968), a shift that was accompanied by increasing numbers of slaves in the region. In both 1850 and 1860, slaves made up over half of the population of Bowie County, while the other three counties were not far behind (see Campbell 1989:Maps 4 & 5). For the same years, the statewide percentages of slaves to the total population was much smaller, 27 percent for 1850 and 23 percent in 1860 (Jordan 1986). The town of Jefferson, on Cypress Bayou to the south, was the nearest cotton market to WOCMA, and the Antebellum planters in the area undoubtedly sent their cotton there for sale (Peter and Cliff, eds. 1990a:39). This period also saw the first growth of nonagricultural industries in northeastern Texas. The first saw pit and lumber mill in Cass County was constructed during this time by T.J. Foster in order to supply lumber for the construction of the new county courthouse in Linden. The first lumber residence was built in the county in 1855 (Webb and Carroll, eds. 1952:1:306). Other major industries established about the same time included tanyards and syrup mills, while after 1857, railroad construction progressed to the north in Bowie County (Webb and Carroll, eds. 1952:1:198; 2:59).

Civil War and Aftermath, 1860-1870

After the presidential election of 1860, it is not too surprising that the sympathies of most of the Anglo-American residents of Northeast Texas lay with the secessionist southerners. After all, a majority of them had immigrated from the South; the region as a whole had a substantial slave population; and the cash economy of the area was built on slave-based agriculture. Although Bowie, Cass, and Titus counties (including present Morris and Franklin counties) all voted for secession in 1861, a large number of voters in Titus County (over 40 percent, in fact) did vote against secession (Pool 1975:109). Thus, a large number of Titus County voters followed the residents of most of the more westerly counties along the Red River (i.e., Lamar, Fannin, Grayson, Collin, Cooke, Montague, Wise, and Jack counties) in opposing secession and advising moderation. Pool (1975:108) suggests this was due to the lead of James Throckmorton and other prominent moderates, but it should also be noted that in most of these counties slavery was of less economic importance than farther east. For example, in 1860 only Lamar County had a population which included more than 25 percent slaves (Campbell 1989:Map 7). Nevertheless, in most of Northeast Texas, anti-Union feelings ran high. For example, the state legislature changed the name of Cass County to Davis County in 1861, to honor Jefferson Davis, but the name was changed back to Cass in 1871 (Webb and Carroll, eds. 1952:1:306).

Northeastern Texas escaped serious, direct effects from the Civil War, being too far from the centers of fighting to the east and south to be affected by Union forces, and too far east of the frontier to be affected by the resurgence of Native American problems, which accompanied the withdrawal of United States and Texas military forces (Pool 1975:110-113). Indeed, as a result of its isolated location, Northeast Texas became a refuge for slaves sent west by their owners to avoid their confiscation as contraband by the federal forces, and by the end of the war they had become a source of concern for some of the civilian authorities in the region (Campbell 1989:243-246). Throughout the war, Texas supplied valuable industrial products to the Confederate armies fighting in the east. The penitentiary at Huntsville was one of the most important industrial sites in Texas, producing various cloth products for the Confederate army, including both cotton and woolen goods (Webb and Carroll, eds. 1952:1:352). By 1864, industrial centers in Northeast Texas included Tyler, with a Confederate Quartermaster's Clothing Bureau depot producing shoes and equipage and a Field Transportation Bureau shop specializing in the manufacture and repair of military transportation equipment; Jefferson, with a shoe factory and Clothing Bureau depot; and Marshall, with a Clothing Bureau steam foundry producing skillets and camp kettles (Webb and Carroll, eds. 1952:1:352). Field Transportation Bureau shops in the region were also located in Rusk, Mount Pleasant, and Paris. Marshall was also a center of powder and ammunition production, and after the fall of Vicksburg in 1863 it became the seat of civil authority west of the Mississippi River and housed the wartime capital of Missouri and the headquarters of the Trans-Mississippi Postal Department (Webb and Carroll, eds. 1952:2:148).

The defeat of the South in 1865 brought with it the end of slavery in Texas and the breakdown of the old slave-based plantation system, the presence of a Union army of occupation, and a Radical Republican administration firmly in control of the state house. Despite this situation, conservative Democrats were able to blunt many of the radical reforms of the Reconstruction period (Moneyhon 1989), and in 1874, the Radical Republicans lost control of the state government and the Reconstruction period in Texas officially ended (Webb and Carroll, eds. 1952:2:446-447).

The end of slavery brought with it many changes in the economy of rural East Texas. Lacking the cheap and dependable labor resources provided by slavery, the large plantations of the pre-war period ceased to be economically feasible, and many were broken up and partially sold off. While this process sometimes included the disposal of productive land, it often involved the sale of unproductive or unimproved acreage in an attempt to obtain cash during the post-war recession. Whereas, previously slaves had been the primary form of disposable property, being bought and sold as much for investment purposes as for their labor (see, for example Campbell 1989), after the war land came increasingly to play this role. As a result, despite the large number of newly freed slaves, most of the land put on the market found its way into the hands of speculators and investors, with the result that a new system of share cropping or tenant farming replaced the old plantation system. Productive land was now often held by absentee landlords with the labor supplied by African-American or poor Euro-American share croppers or tenants. Although this system failed to improve the lot of the sharecroppers and tenants, it was a successful replacement for the pre-war system and by the beginning of the twentieth century, the bulk of the rural farms in Northeast Texas were operated by sharecroppers or tenants.

Initial Commercialization, 1870-1920

After 1870, the population of Northeast Texas began to increase and the region began to recover from the worst effects of the war and the subsequent recession. One of the most important factors in this recovery was the increasing role of the railroad in the regional economy. A small amount of railroad construction had occurred prior to the outbreak of the war, with more than 50 miles of track laid from Texarkana westward by the Memphis, El Paso, and Pacific Railroad in 1857. Following the end of the war, construction did not resume for four more years, but when it finally did, it continued at a relatively steady rate. Twenty-three miles of railroad were in operation in Bowie County in 1870, and in 1872 the Jefferson Branch of the Texas and Pacific Railroad went through the eastern portion of Cass County. In 1876, the East Line and Red River

Railroad (later part of the Louisiana and Arkansas) crossed the southwest portion of Cass County, the southeast corner of Titus County and, building west from Jefferson, crossed Morris County. In 1878, the Tyler Tap Railroad (later the St. Louis and Southwestern of Texas) crossed Titus County. In 1880, the Texas and St. Louis Railroad (also later the St. Louis and Southwestern) crossed the northern part of Morris County from Texarkana, while in 1895 the Cotton Belt Railroad crossed the northwest corner of Cass County. Finally, an independent line, the Paris and Mt. Pleasant Railroad, was completed in Titus County in 1913 (Webb and Carroll, eds. 1952:1:306; 2:238, 783).

New towns sprang up along these railroad routes and developed as important shipping centers. These included Kildare, Atlanta, and Lanark in the eastern portion of Cass County; Avinger in southwestern Cass County; and Naples in northeastern Morris County. The old community of Hughes Springs in Cass County became a resort town as a result of the railroad's arrival (Webb and Carroll, eds. 1952:1:306).

The continuing expansion of the railroads after 1870, and the improved communications they brought, spurred the development of other local industries as well. During this period, lumbering assumed its place as an important industry in many areas of East Texas (Chandler 1937). It became one of the chief industries of Cass County prior to 1877 and reached its peak there in 1890 (Webb and Carroll, eds. 1952:1:306), while during the 1880s over 100 workers in Bowie County were employed by the lumber industry there. Titus County was also heavily lumbered, with four-fifths of its area being timbered (Webb and Carroll, eds. 1952:2:782). Sawmills to process this lumber also sprang up throughout Northeast Texas and provided another major source of employment. A number of these sawmills were located in the general vicinity of WOCMA at this time. One major mill was located at Naples just south of White Oak Creek, another was at Redwater to the northeast, while three major lumber mills were in operation in Titus County during the 1880s (Brown and Gust 1976:xii; Webb and Carroll, eds. 1952:1:198; 2:783). All of these mills helped supply raw material to factories located at Texarkana (Webb and Carroll, eds. 1952:1:198).

Other industries established after 1870 included iron and coal. After 1877, the iron foundries established in Queen City became important in the economy of Cass County (Webb and Carroll, eds. 1952:1:306). In Morris County, Daingerfield was an early center of coal mining activities in the region (Webb and Carroll, eds. 1952:2:238).

In spite of the steady growth in nonagricultural industries during these years, farming continued to be important in Northeast Texas, with the small, owner-operated farm still prominent. Despite the inequities of the sharecropper and tenant systems, the participants were not locked into the system as had been the case under slavery, and the last three decades of the nineteenth century witnessed increasing numbers of African-Americans achieving the status of small landowners. They often settled in dispersed rural communities separate from those of their white neighbors. One such community was Evergreen, located between White Oak Creek and the Sulphur River in Titus County after 1900 (Brown and Gust 1976:xii).

Depression and Recovery, 1920-present

Between about 1920 and 1935, rural population seems to have generally declined, although the population of the region as a whole continued to grow (Webb and Carroll, eds. 1952:1:198). Some factors which may have influenced this demographic shift were the continued growth of urban industries, declining agricultural productivity of the land, and the depressed regional and national economy. Shallow lignite deposits in the western part of Titus County were extensively mined in the 1920s (Webb and Carroll, eds. 1952:2:782). The discovery of oil in Cass County in 1935 and in the Talco Field in Titus County in 1936 led to the development of new industries and increased employment in those counties, although the overall population of Cass County continued to fall (Webb and Carroll, eds. 1952:1:306; 2:783). During World War II, an iron ore plant located in the southwestern portion of Morris County at Lone Star helped spark renewed economic growth in that area (Webb and Carroll, eds. 1952:2:238).

The period following the end of World War II has been one of general prosperity and urbanization for the entire region. Demographic changes within this area have been dominated by the growth of medium-sized urban areas, such as Texarkana and Mt. Pleasant. For example, the population of Bowie County in 1970 was 67,813, with over half residing in Texarkana (35,000). Commercial patterns in the region have benefitted from the construction of a major interstate highway (I-30) which has served to link the area to major manufacturing centers to both east and west. The improved infrastructure, as well as the construction of several lakes in the area, such as Wright Patman Lake to the east of WOCMA, also has brought increased prosperity in the form of tourism and the recreational dollar.

In spite of this growth, agriculture, livestock, and timber continue to play a major role in regional economy. Approximately 170,000 acres in Bowie County are in use today for hay or pasture for livestock, while an additional 100,000 acres are planted in soybeans, cotton, wheat, and rice (Fox 1980:1). A recent almanac listed beef and dairy cattle as important financial resources for Cass County, as well as wheat, soybeans, milo, corn, and rice (Kingston, ed. 1988). Cotton, corn, potatoes, peanuts, melons, and vegetables are produced in Morris County, while dairying and poultry are also important. Cattle raising has become the major rural industry in Titus County, while commercial lumbering has severely declined (Webb and Carroll, eds. 1952:2:783). Pine, gum, post oak, and white oak are still cut commercially in Morris County (Webb and Carroll, eds. 1952:2:238), while in Bowie County, about 290,000 acres are used for commercial timbering activities today (Fox 1980:1). Other resources in the area include lignite leasing in southern Bowie and Titus counties; oil products, iron ore, lignite, and clay in Cass County; shingles, cottonseed oil, and cotton fiber in Morris County; and oil and asphalt, meat packing, milk processing, pottery, and lignite in Titus County (Fox 1980:2; Webb and Carroll, eds. 1952:1:306; 2:238, 2:783).

CHAPTER 4

RESEARCH OBJECTIVES AND METHODS

by
David White, Maynard B. Cliff, Steven M. Hunt, and Duane E. Peter

The cultural resource investigations reported here were undertaken in order to identify both prehistoric and historic archeological sites and other important cultural resources contained within approximately 5,000 acres of the White Oak Creek Mitigation Area (WOCMA), in Bowie, Morris, and Titus counties, Texas. This cultural resources work was undertaken with three primary management goals in mind:

1. to locate cultural resources occurring within the designated survey area;
2. to assess the significance of those resources in regard to their potential for inclusion in the National Register of Historic Places (NRHP); and
3. to make recommendations for the treatment of those resources based on their NRHP assessments.

For the approximately 5,000 acres examined under this phase of the investigations at WOCMA, the first of these goals was accomplished by a program of intensive pedestrian survey and shovel testing undertaken using the field methodology described in the second part of this chapter. This intensive survey located and recorded 59 cultural resource sites and 34 localities. Two of these sites had been previously recorded (Bell n.d.), while the remaining 57 sites were not. The assessments of significance and recommendations for all 59 sites are presented in a preliminary fashion in the next chapter on research results and are reiterated in Chapter 6. The remaining portions of this chapter present the methodological background for the current investigations, the explicit survey methodology used in the field, and a discussion of the artifact analysis phase of the research.

INTENSIVE SURVEY METHODOLOGY

The intensive pedestrian survey of the 5,000 acres covered by this phase of the WOCMA research was conducted in two phases. Phase I was conducted from September 27 to October 18, 1993, by a four-person crew (three crew members and one Field Supervisor). Phase II ran from July 6 to August 19, 1994, with the work being undertaken by a maximum of 10 people (eight crew members and two Field Supervisors).

In all, the pedestrian survey involved a total of 302 person-days in the field, for an average daily work figure of 16.5 acres surveyed per person-day. During this survey, 59 prehistoric and historic sites were located and recorded, for an average density of one site for every 85 acres surveyed. The extremely low density of historic components in this portion of WOCMA (one site per 1,000 acres) in comparison to the density of prehistoric components (one site per 86 acres) points out the great difference in the cultural perception of the utility of these areas between the prehistoric and historic periods.

In undertaking their work, the crews systematically traversed the survey areas in parallel transects at varying intervals of 20-40 m. Since ground cover hindered site detection in most areas, shovel tests were excavated frequently in all locations which were judged to have any probability of archeological deposits, such as (1) level to moderately level upland edges at the tops of slopes overlooking stream bottoms; (2) level to moderately level terraces adjacent to stream floodplains; (3) level to moderately level knolls or benches on or at the base of slopes adjacent to stream floodplains; and (4) floodplain rises or levee remnants. These shovel tests usually were excavated to (or into) the clay subsoil, or to a depth of 50 cm, whichever was applicable. The fill from these survey shovel tests was screened through 6.4-mm hardware cloth. It is estimated that approximately 1,210 shovel tests were excavated throughout the 5,000-acre survey area in the process of locating sites, with an additional 940 being excavated as part of the site recording procedure. Overall, this averaged one shovel test for every 4 acres of the area of pedestrian survey, or about 0.25 shovel tests per acre. While this figure may appear low at first glance, it should be kept in mind that considerable portions of the WOCMA survey area consisted of either flat areas of clay floodplain soils or sloughs, or valley walls with slopes of greater than 5 percent with little or no likelihood of containing archeological remains. Excluding such areas, a more accurate estimate of survey intensity would probably be one shovel test per 1-2 acres.

Once a site had been located, shovel testing was undertaken in an effort to define the horizontal and vertical extent of the site, the nature of the subsurface deposits (if any), and the degree of disturbance. Shovel tests were approximately square and 30 cm on a side. The soil from each shovel test was also screened through 6.4-mm hardware cloth. Artifacts were bagged according to natural strata or by smaller arbitrary levels within those strata, when warranted by the thickness of the deposit. Each shovel test was recorded on an individual test unit form. The number of shovel tests excavated per site ranged from five to 50, depending on the size of the site, and averaged 14 shovel tests per site.

A State of Texas site recording form was filled out while on the site, noting locational information, vegetational cover, contextual integrity, approximate temporal period, and artifactual material (both surface and subsurface); the location of the site was recorded on the appropriate USGS topographic map. A scaled pace-and-compass map was drawn of each site, showing the general topography and the locations of all significant features, areas of disturbance, vegetation, surface artifacts, and testing units. Each site was photographed from several viewpoints, usually using both black-and-white prints and color transparencies, including in the image any damage evident to the cultural resources by vandalism, construction, or earth disturbances of any kind. When they were present, surface features were also photographed. These photographs were recorded in a photo log.

Although most sites lacked any surface material whatsoever, collections from those sites that did usually involved only temporally diagnostic artifacts (i.e., projectile points or tools, diagnostic prehistoric ceramic sherds, or recognizably diagnostic historic items). The ground cover and low density of surface items at most of these sites meant that the total sample of surface materials from which to draw a collection of diagnostic artifacts was very small and in many cases no temporally diagnostic surface material could be identified at all. However, a few sites were located along two-track roads or were heavily eroded, therefore occasionally facilitating the recovery of a relatively large surface collection.

For any sites which contained either surface features or features discovered in shovel tests, recording procedures included the additional description of these features on the shovel test form and in supervisor's notes, and photographs, in addition to the normal photographs taken on the site.

Each recorded site was identified with a permanent marker, consisting of a metal rebar stake, placed on the site. The location of each marker was indicated on the site map. The top of this marker was in turn covered with an aluminum cap bearing the site's identifying State of Texas number in the form of 41XXxxx, with XX being the two-letter county designation and xxx being a two- or three-digit site number. Site designations were applied only to clusters of artifacts with some degree of subsurface preservation, which represented

occupation or activity areas. Isolated subsurface artifacts or surface finds with no depth were designated as "localities," and were recorded in field notes to allow the documentation of specific locational information and field interpretations. Thirty-four such localities were recorded within the 5,000-acre survey area. The locations of all localities were also plotted on the appropriate USGS topographic map. Field notes concerning survey procedures for each transect, shovel testing observations, localities, and sites were maintained by the Field Supervisor. These field notes documented survey conditions, vegetation cover, amount of area covered daily, and initial interpretations of the cultural properties.

ARTIFACT TREATMENT AND ANALYSIS

Cultural artifacts collected during this phase of survey and site recording at WOCMA were removed to the laboratory facilities of Geo-Marine, Inc. (GMI), in Plano, Texas, where all artifacts were washed, catalogued, and labeled in compliance with the standards of the Texas Archeological Research Laboratory (TARL), University of Texas, Austin. Prehistoric and historic artifact analysis was undertaken at GMI's facilities by GMI personnel.

The number of artifacts recovered from the 59 cultural resource sites and the 34 nonsite localities located during the 1993-1994 WOCMA survey totaled 1,621. Of these, 1,496 were prehistoric artifacts, recovered from 58 sites and 27 localities, while the remaining 125 artifacts were historic and were recovered from seven sites. These totals do not include 27 fragments of animal bone recovered from seven sites (41BW553, 41MX49, 41MX51, 41MX77, 41MX97, 41TT670, and 41TT674), most of which are believed to have been recovered from prehistoric contexts, and three carbonized wood samples recovered from two sites (41BW553 and 41MX49). The results of the analysis of this material are presented along with the descriptions for each site in the following chapter.

The primary goal of the artifact analysis was to assign the sites to a particular temporal period and to provide an initial indication of site function. From the beginning it was known that most of the historic sites would fit into the broad late nineteenth to twentieth century period, but it was felt that the artifact analysis in combination with whatever archival data were readily available would allow a more accurate determination of date of occupation to be made.

Prehistoric Artifact Analysis

The analysis of the prehistoric artifacts recovered from WOCMA during the 1993-1994 pedestrian survey makes use of artifact categories commonly in use in Northeast Texas, and was designed to provide a crude evaluation of the degree of activity-variability which may have been undertaken on each site by simply noting the number of broad artifactual classes present in the collection, along with the frequency of each class. Thus, it is assumed that a site which yields projectile points, bifaces, several types of unifaces, lithic debitage, and ceramics was the locus of more activities than was a site which contains lithic debitage alone. Within the limits of the material collected, always being wary of small samples, this does not seem to be an unwarranted assumption and was used in conjunction with subsurface artifact density (measured in artifacts per shovel test) to distinguish several site categories or classes which are at least partially reflective of intensity of site occupation. Thus, *low intensity sites* (possibly short occupation campsites, logistical sites, or functionally specific sites) are characterized as having low artifact density (defined as an average of less than three artifacts per shovel test), coupled with small to moderate site size (defined as less than 5,999 m²) and only one or two artifact classes present (such as lithic debitage and utilized flakes or burned rock). In contrast, *high intensity sites* (possibly long-term campsites, intensively reoccupied campsites, or residential sites) either contain evidence of multiple activities, ceramics, nonlocal or unusual artifact types, and evidence of architectural remains (such as burned clay), regardless of artifact density or size, or they have a moderate

to high artifact density (an average of three or more artifacts per shovel test), or they are large (defined as more than 6,000 m² in area).

As noted above, 1,496 prehistoric artifacts were collected from the sites recorded during the 1993-1994 WOCMA survey. During the analysis of this material, each artifact was examined in sufficient detail to allow the identification of specific attributes and its placement into a specific artifact group and class. Detailed definitions for all prehistoric artifact classes used in the present analysis are presented in Appendix A. The major artifact groups are lithics and prehistoric ceramics. The lithic group includes finished bifacial tools (including both dart and arrow points), unfinished bifaces, unifaces, unmodified debitage, utilized flakes, cores, ground/pecked/battered stone, and unworked stone (which includes burned rock). The prehistoric ceramics group includes impressed daub, unimpressed baked clay, sherds, or other miscellaneous ceramic artifacts.

Historic Artifact Analysis

The goals of the historic artifact analysis were primarily to provide data on the periods during which the site was occupied and, secondarily, to generate data which would allow an initial estimation of site function. In regard to this second goal, it has been found in the past that a reliable estimate of the period of occupation often could lead to information on the ethnic background and socioeconomic standing of the occupants, when used in conjunction with archival and chain-of-title data. Unfortunately, for this phase of the WOCMA studies, none of the eight sites with historical remains had any archival information beyond data regarding their presence on earlier twentieth century maps. Thus, the evaluation of the NRHP eligibility of each site's historical component was based largely on the condition of its archeological deposits alone.

Historic material was recovered from, or observed on, eight recorded sites during the 1993-1994 intensive survey at WOCMA. Three of the recorded sites (i.e., 41BW551, 41BW555, and 41MX48) contained only very limited subsurface historic artifacts and are not considered to have historic components, but are classified as sites because of their prehistoric remains. The remaining five recorded sites represent historic components, although not necessarily with a large amount of artifactual remains, and activity areas, such as structure loci or refuse deposits.

One-hundred-and-twenty-five (125) individual historical artifacts were recovered from all sites recorded during the 1993-1994 WOCMA survey. Judgmental random shovel tests were employed at all of the sites with historical remains identified during the survey. Because of the limited samples recovered from each of the recorded sites (an average of only 16.3 artifacts per site), and the fragmented condition of the majority of the collected material, the analysis of the historical artifacts was modified to allow only identifiable material to be used to determine any patterns that may exist. The limited nature of the recovered data effectively prevented the development of any hypotheses relating to demography or social organization. While indicators of site type and use can generally be noted through the artifact collection, in this case only generalizations about site types were noted because of the lack of real diversity in the samples across sites. Also, although the sample size varied from site to site, primarily because of differences in subsurface densities and in the amount of exposed surface artifacts, the artifact samples could still be used in a meaningful manner for increasing our knowledge of the cultural deposits on the sites themselves. In addition, the overall data help to supplement our knowledge of original site location and historic land-use patterns.

The analytical framework used for the examination of this material was modeled after Stanley South's (1977) artifact pattern analysis method. Several categories were created for assignment of the recovered artifacts: domestic, architectural, personal, and activities (see Appendix B). Metal fragments and questionable ceramics or glass (i.e., those artifacts that were unidentifiable in regard to their being tableware, storage, furnishings, or any other subcategory) were assigned to an indeterminate category. Thus, 51 items were

assigned to the domestic category, 35 to the architectural category, 18 to the activities category, four to the personal category, and 17 to the indeterminate category.

The analysis of the historic material from the 1993-1994 WOCMA sites attempted to identify temporal-specific occupation periods for the historical sites encountered. Identification of the date ranges for these sites was attempted using a modified version of South's (1972) evolution and horizon in ceramic analysis work. This type of analysis uses knowledge of production dates for ceramics and the popularity of types as a basis for identifying the temporal and spatial changes at historical sites. Because of the difficulty in analyzing sites with ceramic samples of similar types with extended periods of production, especially when these samples are very small, the current analysis also makes use of some types of glass as an analytical tool to assist in identifying temporal occupation periods. Standard analytical techniques for ceramics tend to assume a standard popularity curve, whose center is placed close to the median production date for the ceramic type. Given the difficulty of assigning dates to undocumented sites with limited ceramic samples, it was felt that the investigation of such sites might benefit from examining other datable material more closely. In this connection, it is felt that datable glass may serve as such an additional tool.

Detailed descriptions of nineteenth and twentieth century ceramic types have been covered in other publications (Hughes and Hughes 1968; Lofstrom 1976; Miller 1974; Price 1979; and others) and will not be repeated here. Similarly, glass has been described in a great number of publications (Ferraro and Ferraro 1966; Fike 1966; McKearin and McKearin 1968; Walbridge 1969; and others) and also will not be repeated here. The abundance and variety of late nineteenth and twentieth century glass offers a unique research tool with which to evaluate sites. Mold types, embossing, glass type, and other attributes can be used to perform the same tasks as are accomplished with South's formulas.

CHAPTER 5

RESEARCH RESULTS

by

David White, Maynard B. Cliff, Steven M. Hunt, Darryl Pleasant, and Gary L. Shaw

As was noted in a preceding chapter, the most recent intensive survey of 5,000 acres in the White Oak Creek Mitigation Area (WOCMA) resulted in the recording of 57 previously unknown cultural resource properties in Bowie, Morris, and Titus counties (Figure 4). In addition, two previously recorded sites (41TT80 and 41TT82) were relocated and their survey forms updated. As was also mentioned previously, cultural resource remains were recorded as sites only when they appeared to represent occupation or activity areas, while isolated finds were denoted as localities. Following these criteria, 34 localities were designated during the course of this investigation (Figure 5). Most consisted of a single or a limited number of artifacts collected from one shovel test or on the surface where further shovel testing in the vicinity failed to locate any additional material.

The first part of this chapter describes in detail the cultural resource sites recorded during this investigation, together with estimates of their potential for inclusion in the National Register of Historic Places (NRHP). In the individual descriptions, sites are evaluated as being small, medium, large, or very large. Small sites are defined as less than 2,500 m² in area, medium-sized sites range from 2,500 to 5,999 m², large sites encompass 6,000 to 11,999 m², and very large sites are larger than 12,000 m². Subsurface artifact densities are likewise evaluated as being low, moderate, or high based on the average density of artifacts per onsite shovel test (disregarding shovel tests believed to be beyond the site boundaries), with low density sites having an average of less than 3 artifacts per shovel test, medium or moderate density sites having an average of between 3 and 4.9 artifacts per shovel test, and high density sites having an average of 5 or more artifacts per shovel test. As these sites are located in three different counties, the following discussion is organized by county. This is followed by a shorter description of the localities identified during the investigations.

SITE DESCRIPTIONS

Bowie County

Site 41BW550

Site 41BW550 is a very small, low density prehistoric site on a small terrace remnant in the floodplain of the Sulphur River. It is at an elevation of 79 m above mean sea level (amsl) and covers an estimated 700 m² (35-x-20 m). A small, unnamed drainage about 260 m southwest of the site may be an old channel of the

Sulphur River. The soil in this area is mapped as being Annona loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site is located in an overgrown pasture surrounded by dense riverine vegetation consisting of oak, sycamore, and locust trees along with a goldenrod, ragweed, bunchgrass, daisy, and greenbrier underbrush. This area appeared to have been cleared by heavy machinery and plowing. Bioturbation was also noted. The contextual integrity of the site is considered to be fair. A dirt two-track road is 35 m north of the site boundary and has not affected the site.

Two of the eight shovel tests excavated in and around the area of site 41BW550 contained cultural material (Figure 6). The sample of two artifacts recovered from these shovel tests yields an average subsurface artifact density of 1.0 artifact per onsite shovel test. Both artifacts were collected from the first 20 cm of soil beneath the surface. The soil profile noted in shovel testing began with an initial layer of brown to light yellowish brown (10YR 5/3 to 10YR 6/8) sandy loam extending to a fairly uniform depth of 20 cm below the surface. Evidence of disturbance by heavy machinery and plowing was noted within the upper 20 cm. This layer of disturbed sandy loam was underlain by a yellowish red to yellowish brown (5YR 5/6 to 10YR 5/4) silty clay subsoil. As noted above, just two prehistoric artifacts were collected from site 41BW550. Both are small (6.3 to 9.5 mm) pieces of unmodified lithic debitage. One is a tertiary flake of petrified wood, and the other is a bifacial thinning flake of chert.

In summary, site 41BW550 is a very small, low density prehistoric site located on a small remnant terrace north of the Sulphur River floodplain. Subsurface artifact density was very low and consisted of only a single artifact class, lithic debitage. Although definitely prehistoric, there were no temporally diagnostic artifacts, thus the period of occupation is classified as unknown prehistoric. Based on the limited inventory, small size, and very low frequency of artifactual material recovered, site 41BW550 has been classified as a low intensity occupation. Given these determinations, and considering that its contextual integrity appears to be only fair, the site would appear to have a low research potential and not be eligible for inclusion in the NRHP. However, site 41BW550 may be functionally and/or temporally associated with sites 41BW551 and 41BW552. The boundary of site 41BW551 is only 45 m to the west of the limits of site 41BW550, while site 41BW552 is only 40 m beyond that. Site 41BW551 may be an Early Ceramic or Caddoan residential site, and there is a strong possibility that site 41BW550 is an extension of that site, possibly a separate activity area. Considered together, the site 41BW550/551/552 complex may have a good research potential. Consequently, it is recommended that site 41BW550 be considered of unknown eligibility for inclusion in the NRHP and be protected until test excavations, designed to determine its NRHP status, have been completed.

Site 41BW551

Site 41BW551 is a medium-sized, moderate density prehistoric site located on the same terrace remnant in the Sulphur River floodplain as site 41BW550. The site is at an elevation of 79 m amsl and covers an area of approximately 3,900 m² (130-x-30 m). The nearest water source is an unnamed, intermittent drainage in the floodplain of the Sulphur River, which may be an old river channel. The soil for this area is mapped as Annona loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site is located in an overgrown pasture surrounded by dense riverine vegetation consisting of oak, sycamore, and locust trees along with a goldenrod, ragweed, bunchgrass, daisy, and greenbrier underbrush. This area appears to have been cleared by heavy machinery and plowing. Bioturbation was also noted. The contextual integrity of the site is considered to be fair. A dirt two-track road comes as close as 20 m north of the site boundary, but does not appear to have affected the site.

Eighteen shovel tests were dug in and around site 41BW551. Only nine of these were within the site boundary (see Figure 6). In all, 30 artifacts were collected from the site, for an average subsurface artifact density of 3.3 artifacts per onsite shovel test. Shovel Tests 1 and 16 yielded artifacts down to 80 cm below surface. Soil profiles viewed during shovel testing in and around the site began with an initial layer of

①

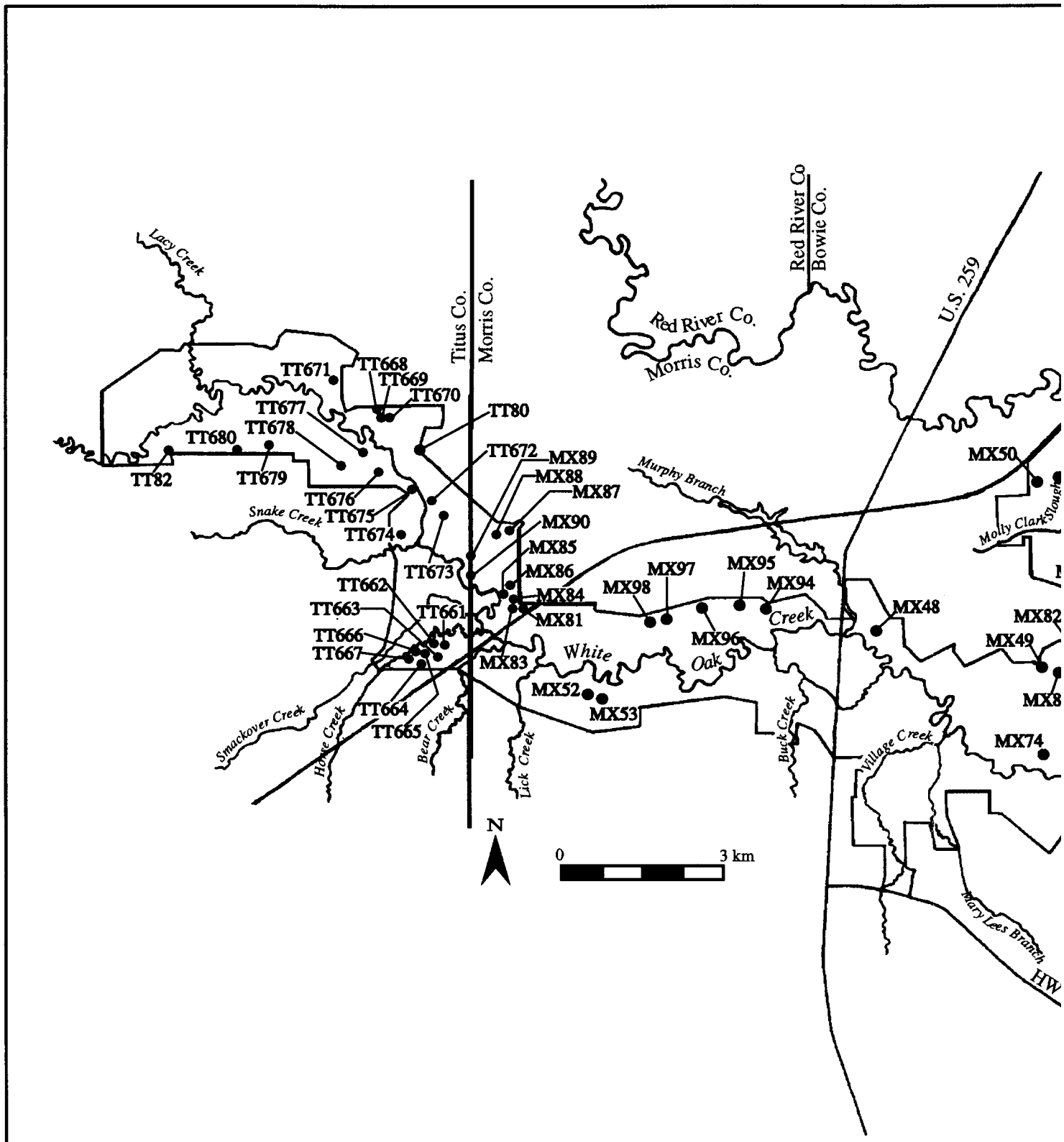
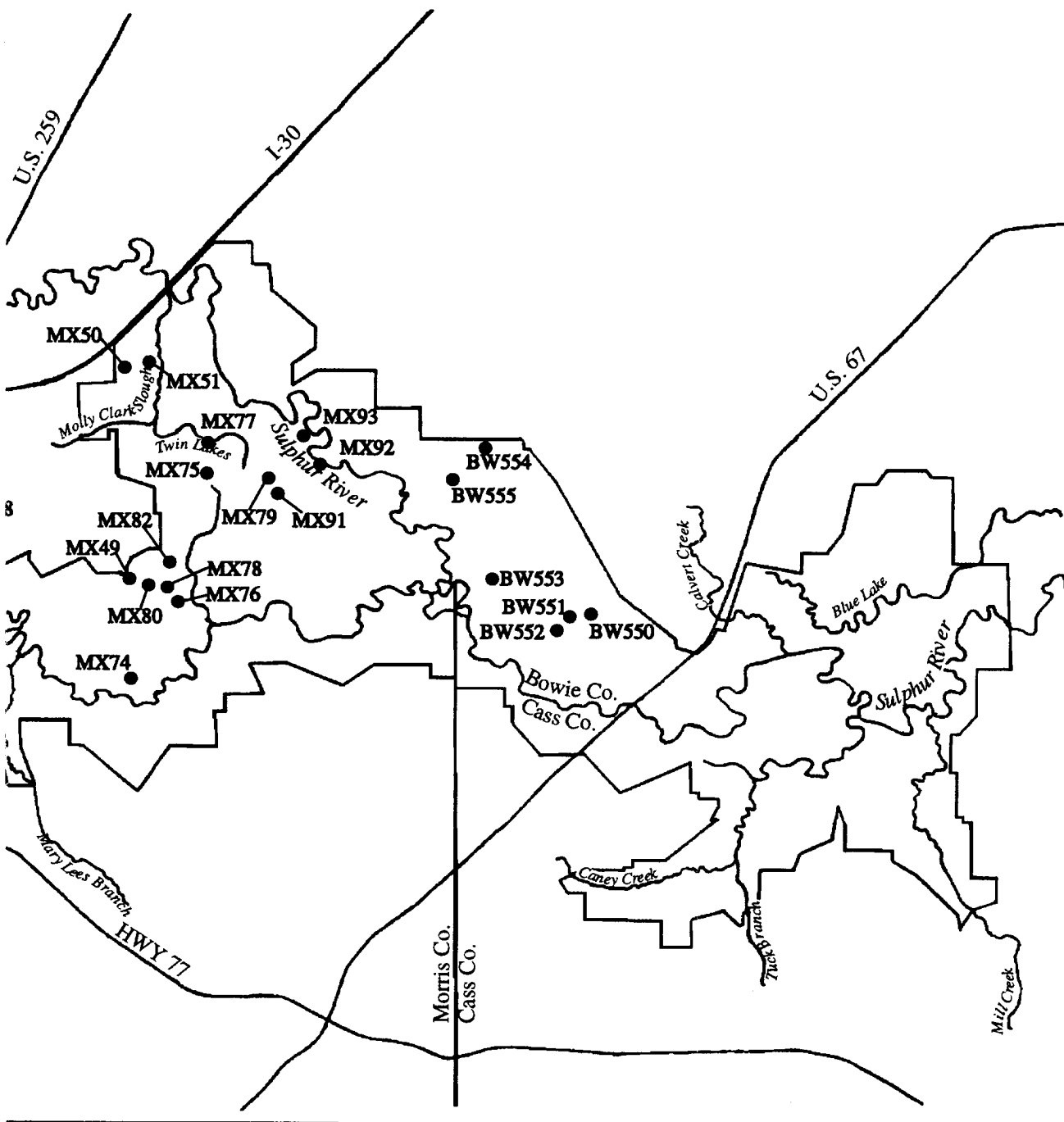


Figure 4. Cultural resource sites recorded during the 1993-1994 pedestrian survey of portions of the White Oak Creek Mitigation Area (WOCMA).

2



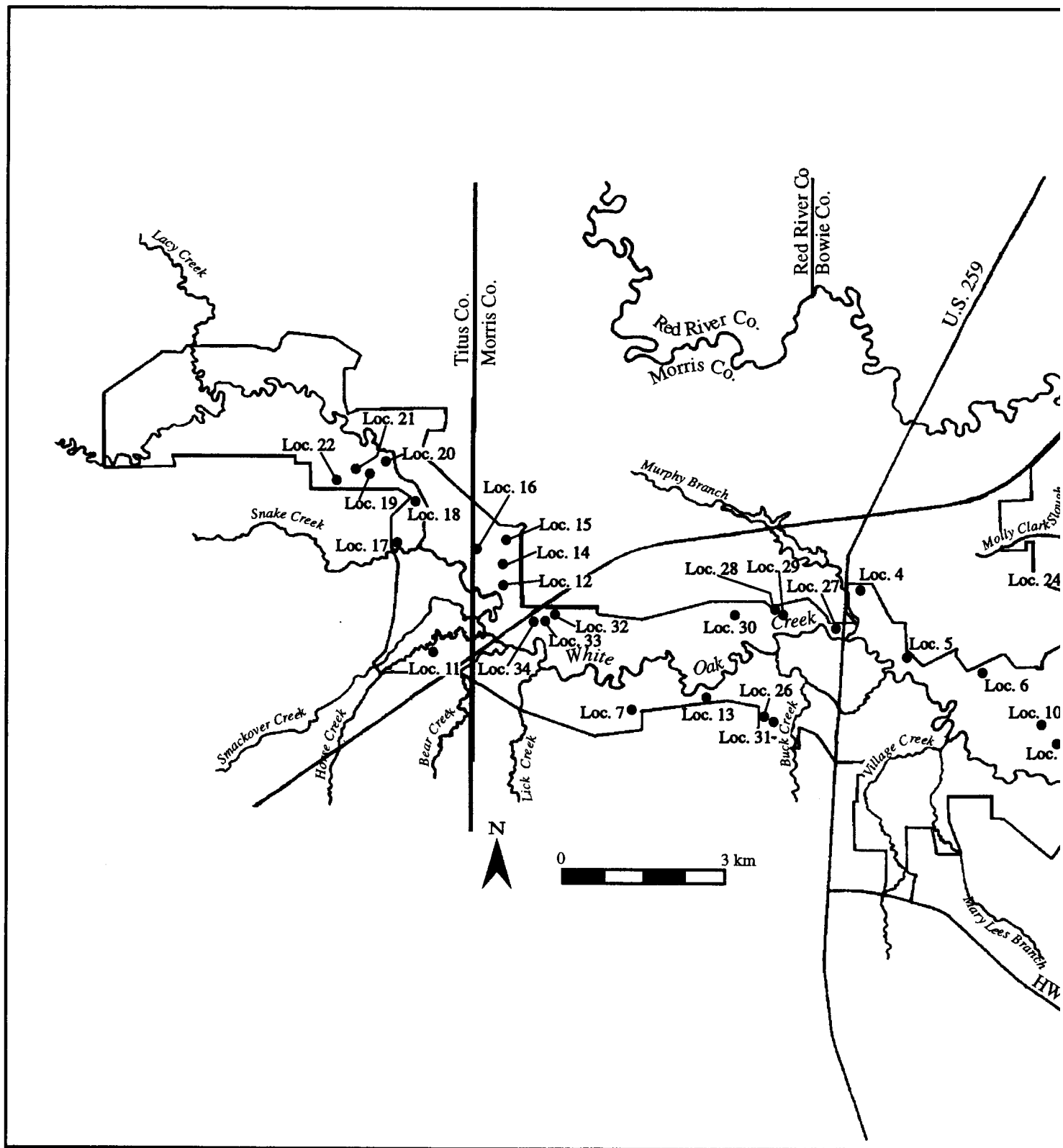
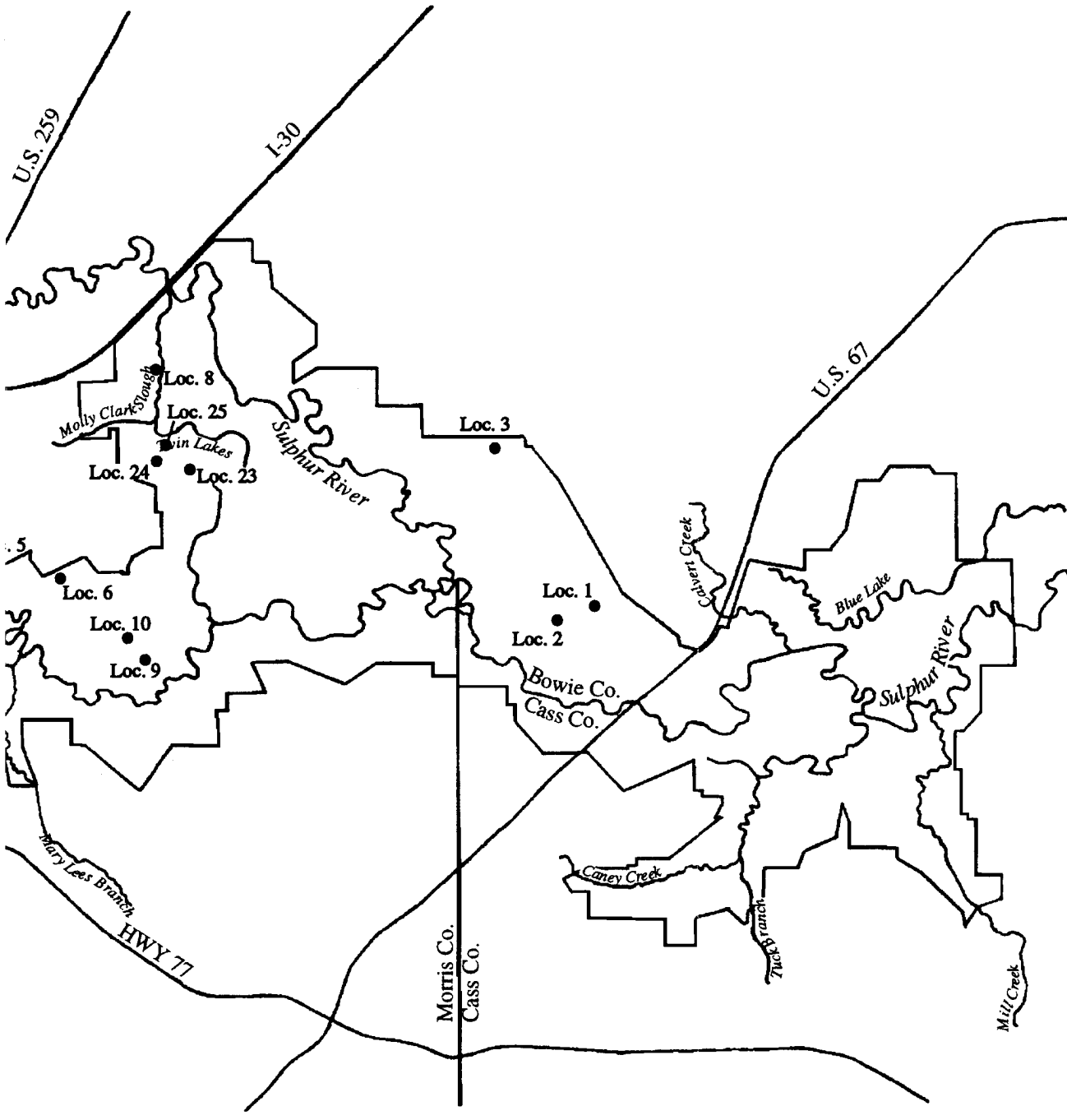


Figure 5. Nonsite localities recorded during the 1993-1994 pedestrian survey of portions of the White Oak Creek Mitigation Area (WOCMA).

2



DCMA).

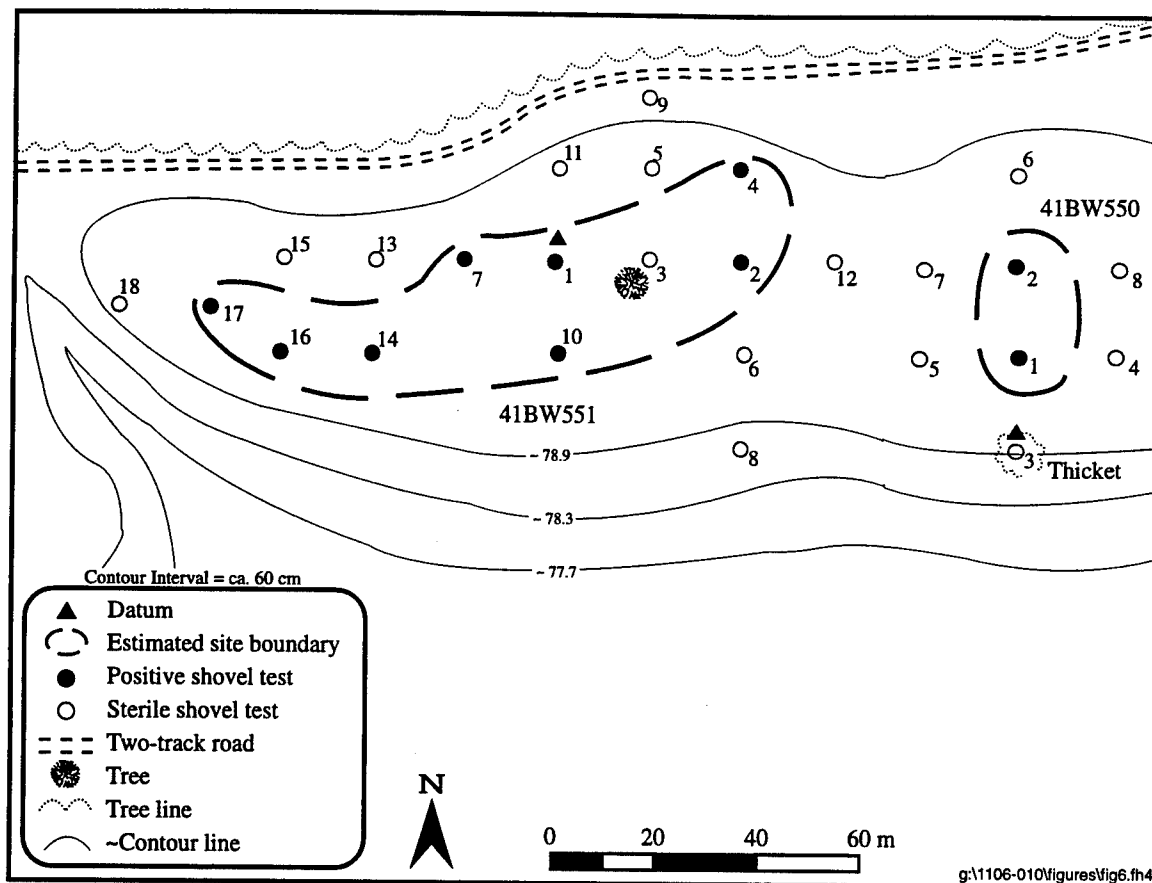


Figure 6. Pace and compass map of sites 41BW550 and 41BW551.

yellowish brown (10YR 4/4) to light brownish gray (10YR 6/2) silty loam extending to a fairly uniform depth of 40 cm below the surface, although in a few instances it continued to 50, 55, 60, and 80 cm below surface. Seven shovel tests went beneath this layer of silty loam and encountered either a very pale brown (10YR 7/4) silty clay (Shovel Tests 2, 4, 8, and 16) or a white (10YR 8/1) silty sand (Shovel Tests 7, 13, and 17). As mentioned previously, evidence that surface vegetation on the site has been cleared by heavy machinery and plowing was found. This mechanical disturbance was limited to the upper 20 cm of fill and was evident in the soil profiles viewed during shovel testing. The recovery of three graphite skeet fragments in Shovel Test 17, two fragments within 20 cm of the surface and the other from between 40 to 60 cm below surface, is taken as evidence of this recent disturbance or bioturbation.

Thirty prehistoric artifacts were collected from site 41BW551. This sample consists of one prehistoric ceramic sherd, one finished bifacial tool, one unfinished biface, 26 pieces of lithic debitage, and one burned rock. The ceramic sherd is a plain body sherd with grog temper. It is 5 mm thick and weighs .6 gram. The finished bifacial tool is an arrow point made of chert displaying discoloration due to heat treating of the material prior to manufacture of the tool. The complete point has concave lateral edges and minute shoulders which project slightly laterally (Figure 7). The stem has fairly parallel edges and an almost square base. It measures 25 mm long, 14 mm wide, and 5 mm thick, and weighs 1.2 grams. This arrow point displays similarities to both the Alba and Colbert types. The unfinished biface is a dart-point-sized preform fragment. It is made of a chert similar to that of the arrow point just described, displaying discoloration caused by heat treating of the material prior to attempted manufacture of the preform. It measures 22 mm long, 18 mm wide, and 9 mm thick, with a weight of 3.1 grams. The distal end of the unfinished preform displays a snap

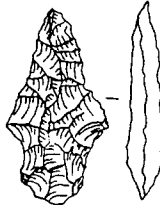


Figure 7. Arrow point recovered from site 41BW551 (Shovel Test 14, Level 2) (Scale 1:1).

fracture while hinge flake scars are present on one face at the juncture of a lateral edge and the broken distal end.

The lithic debitage collected from site 41BW551 consists of 26 flakes. Three of these are primary flakes, six are secondary flakes, six are tertiary flakes, and 11 are bifacial thinning flakes. The debitage tends to be small, with four flakes less than 6.3 mm in size, 12 from 6.3 to 9.5 mm, five from 9.5 to 12.5 mm, and five pieces between 12.5 and 19 mm in size. The predominant raw material types observed in the lithic debitage sample were chert (n=13) and quartzite (n=8), with Ogallala quartzite (n=2), silicified wood (n=2), and petrified wood (n=1) completing the lithic debitage material types represented. The remaining artifact recovered from the site was a single piece of burned rock. It was quartzite and weighed 22.7 grams.

In addition to the prehistoric artifacts described above, three historic artifacts were collected from the site. Specifically, three fragments of graphite clay pigeons, or skeet, were found in Shovel Test 17, two fragments from within 20 cm of the surface and the other from between 40 to 60 cm below surface. These sporting artifacts date to the modern era and are good evidence of recent mechanical disturbance and/or bioturbation.

In summary, site 41BW551 is a medium-sized, moderate density prehistoric site located on a small remnant terrace in the floodplain of the Sulphur River. The presence of an arrow point and a ceramic sherd suggest an occupation during the Early Ceramic or Caddoan period. The dart-point-sized preform is not believed to be definitive evidence of an earlier occupation. Based on its size and density of subsurface artifacts, site 41BW551 is classified as a high intensity occupation. Even though the upper 20 cm of the site appears to have been disturbed, artifacts were recovered from silty loam extending to 40 cm below the surface leaving the site as a whole with fair contextual integrity. Artifacts were also recovered from depths of 50, 55, 60, and 80 cm below surface in some shovel tests. This would indicate a potential of substantial cultural material, possibly even features, at site 41BW551. Considering this, and recalling that sites 41BW550 and 41BW552 are just 45 m and 40 m away, respectively, and are probable extensions of this site, site 41BW551 appears to have good research potential. Consequently, it is recommended that site 41BW551 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations, designed to determine its NRHP status, have been completed.

Site 41BW552

Site 41BW552 is a multicomponent site composed of a small, medium density prehistoric occupation partially overlain by a small, low density historic component. It is located on the same terrace remnant as sites 41BW550 and 41BW551, which are a short distance to the east (site 41BW551 is just 40 m away and site 41BW550 is a little more than 200 m). Sitting at an elevation of 79 m amsl, the prehistoric component of site 41BW552 covers 700 m² while the historic component is roughly 2,200 m². The soil in this area is mapped as being Annona loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). Types

of vegetation observed at the site include ash, bois d'arc, hickory, mulberry, pin oak, redbud, sloe, sweetgum, and sycamore, with an understory composed of blackberry and devils club, along with mixed grasses and weeds. Disturbances to the cultural resources can largely be attributed to more recent use of the site. These recent artificial impacts include a light-duty, two-track dirt road leading to a modern hunting cabin on the site. A trash scatter is attributable to the recent use of the site by hunters. Considering that the surface of the other sites immediately to the west (sites 41BW550 and 41BW551) had been cleared of vegetation by heavy machinery, it is also probable that the surface of this site has at one time been similarly cleared of vegetation. Also, evidence of bioturbation was visible on and around the site. Given these impacts, the contextual integrity of the site is considered to be fair.

Seven shovel tests were excavated in and around site 41BW552, yielding a total of 10 artifacts from this multicomponent site (Figure 8). Eight artifacts were collected from the two shovel tests that defined the prehistoric component, giving an average subsurface density of four artifacts per onsite shovel test. Two historic artifacts recovered from the three shovel tests on the historic component give a subsurface artifact density of .7 artifacts per shovel test. Shovel Test 4 yielded prehistoric artifacts down to 80 cm below surface. The generalized soil profile noted during testing began with a dark yellowish brown to light brownish gray (10YR 4/4 to 10YR 6/2) silty loam, 37 to 55 cm thick, underlain by a white (10YR 8/1) silty loam. Two prehistoric artifacts were recovered from this white silty loam zone in Shovel Test 3.

The eight artifacts recovered from the prehistoric component at site 41BW552 were all lithics, including one utilized flake and seven pieces of unmodified debitage. The rather straight distal edge of the utilized secondary flake bears expedient use-wear, specifically unifacial microflaking on the dorsal surface. It is made of chert; measures 25 mm long, 13 mm wide, and 3 mm thick; and weighs .9 grams. The remaining seven pieces of unmodified lithic debitage are all relatively small. They consist of a single secondary flake, 19 to 25 mm in size, made of Ogallala quartzite; three tertiary flakes, 6.3 to 9.5 mm in size, made of quartzite (n=2) and Ogallala quartzite (n=1); and three bifacial thinning flakes. Two of these bifacial thinning flakes range in size from 6.3 to 9.5 mm, one chert and the other quartzite. The remaining bifacial thinning flake measures between 9.5 and 12.5 mm and is made of chert.

In addition to the prehistoric artifacts described above, two historic architectural artifacts, specifically nails, were collected from site 41BW552. A cut nail made of iron was recovered from Shovel Test 1 at a depth between 20 and 40 cm below the surface. It was a complete 6.3 cm long, 8d cut nail (1840-1890). The other was a wire nail (post-1890) recovered from within 20 cm of the surface in Shovel Test 4. It was complete, measuring 6.3 cm in length, and an 8d nail. The presence of these nails can most likely be attributed to the modern hunting cabin located on the site and the reuse of earlier materials in its construction.

In summary, site 41BW552 is a multicomponent site consisting of a small, moderate density prehistoric site partially overlain by a small, low density historic site. The historic component of the site seems to be less than 50 years old and is represented by a modern hunting cabin and associated artifacts, possibly the result of several decades of sporadic use. Although two nails were recovered from a subsurface context, the function of the historic portion of this site is believed to be strictly limited to recreational hunting activities. Because this historic component appears to be less than 50 years old, it is not recommended to be eligible for inclusion in the NRHP. The small, moderate density prehistoric component of the site is of an unknown prehistoric period. Despite its small size, it has been classified as a high intensity occupation based on its subsurface artifact density. Given the possibility of recent disturbance to the prehistoric component at the site, it would appear to be of little research potential and not eligible for inclusion in the NRHP. However, if the prehistoric portion of site 41BW552 is an extension of a larger residential site that includes sites 41BW550 and 41BW551 (the latter of which is only 40 m to the east), it may have good research potential. Consequently, it is recommended that the prehistoric part of site 41BW552 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations designed to determine its NRHP status have been undertaken.

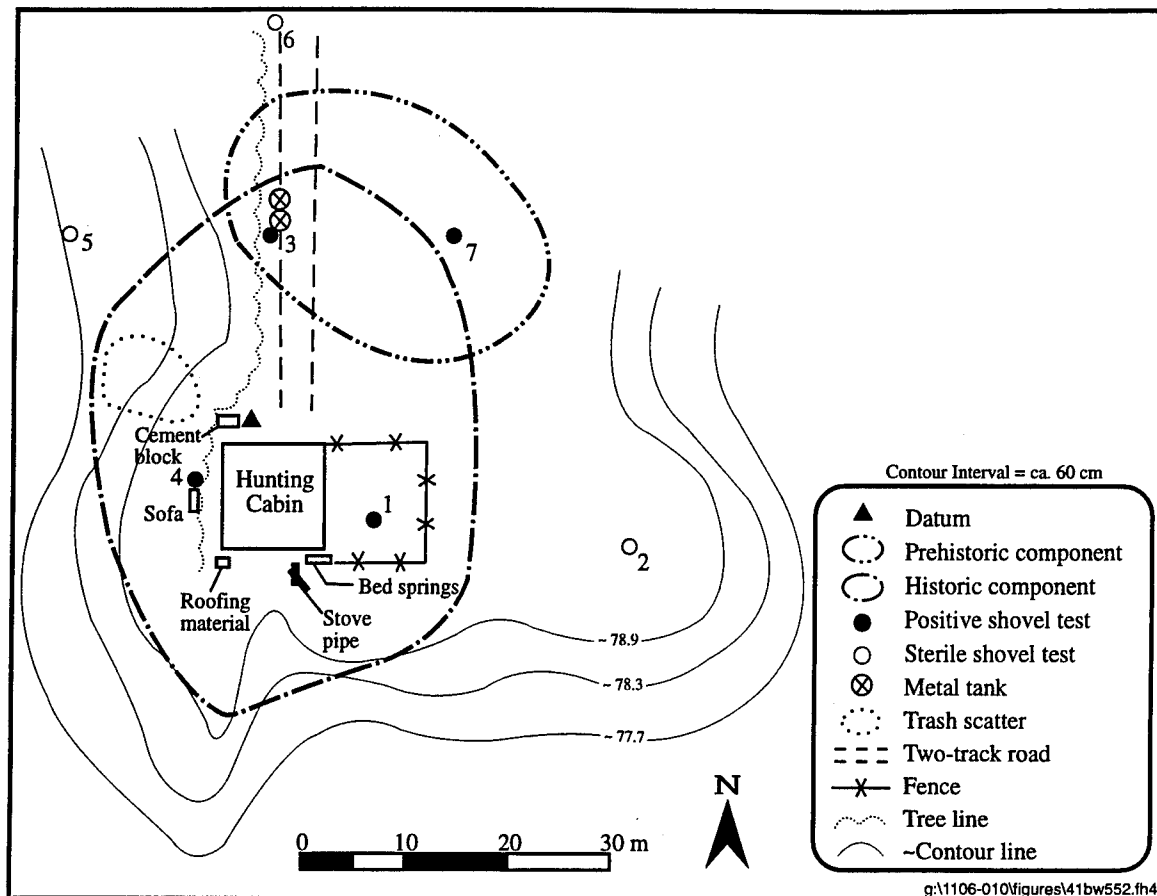


Figure 8. Pace and compass map of site 41BW552.

Site 41BW553

Site 41BW553 is a very large, moderate density prehistoric site located on a terrace remnant just north of Flag Lake. It is at an elevation of 77 m amsl and occupies an estimated 30,000 m² (300-x-100 m). The nearest water source is Flag Lake, possibly a former channel of the Sulphur River, which is about 200 m southeast the site. The soil in this area is mapped as being Sawyer silt loam, 0 to 3 percent slopes (for a description of this soil, see Chapter 2). Vegetation on the site consists of ash, elm, hackberry, hickory, pin oak, red oak, sweetgum, and sycamore trees along with a blackberry, goldenrod, grapevine, greenbriar, huckleberry, locust, mulberry, and mixed grass underbrush. Several fairly large areas of disturbance dot the site. Prehistoric artifacts were exposed in, and collected from, the backdirt of the disturbances. Some of these appeared to be square in shape and 1 to 2 meters on a side, leaving the impression that they resulted from pothunting activity.

In all, 33 shovel tests were excavated in and around site 41BW553. Twenty-four of these are within the site boundary (Figure 9). Ninety-eight artifacts were collected from subsurface testing at the site, for an average subsurface density of 4.1 artifacts per onsite shovel test. Another 10 artifacts were collected from the surface of the site, specifically, from the backdirt of the disturbances mentioned earlier. This gives a total of 108 artifacts collected from site 41BW553. Also, at least 15 shell fragments and 11 bone fragments were collected from the site. A single charcoal sample was collected from Shovel Test 19, Level 2. The item

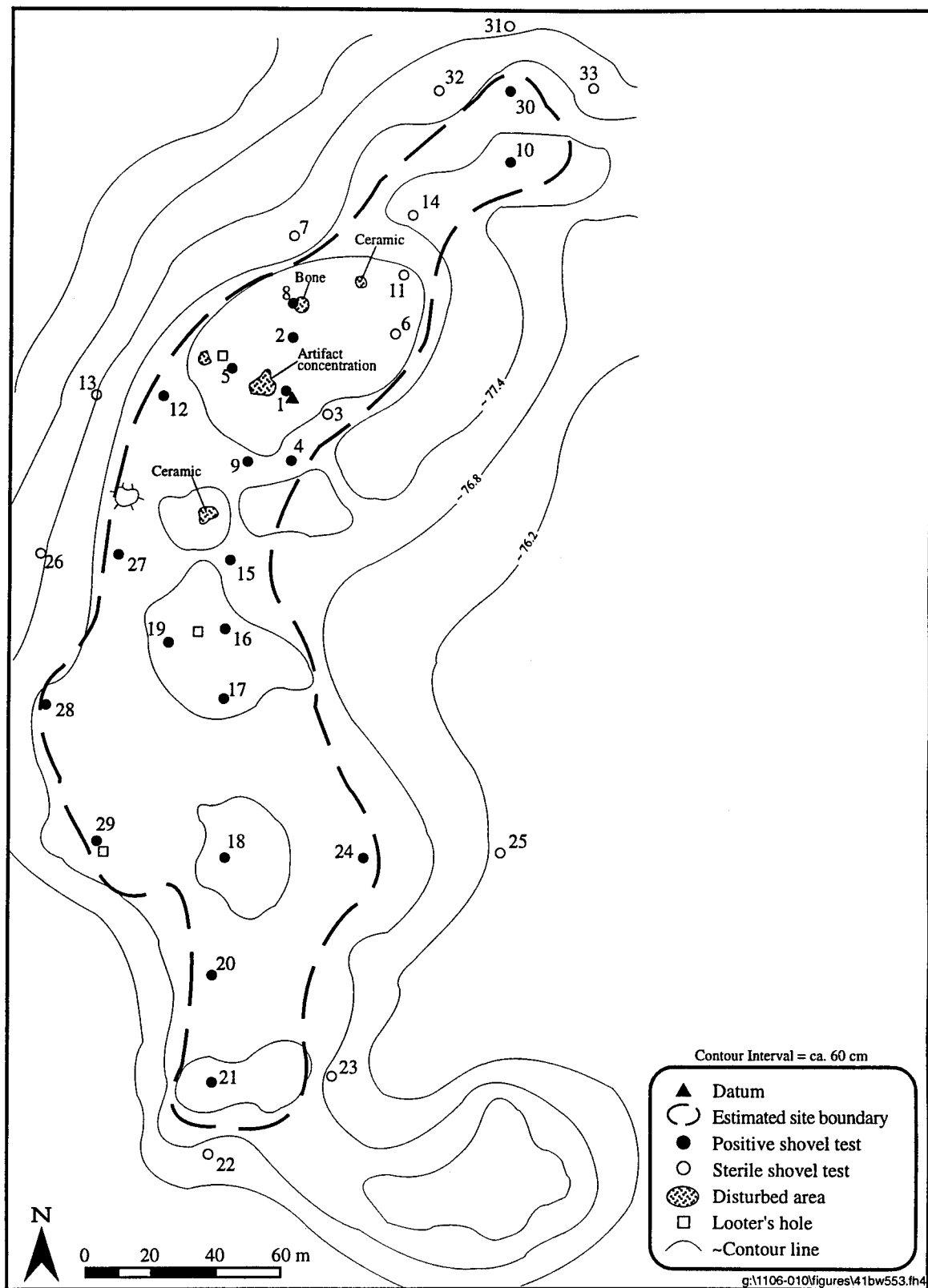


Figure 9. Pace and compass map of site 41BW553.

came from 20 to 40 cm beneath the surface and appears to be a charred shell or hull, perhaps that of a pecan. It was associated with a prehistoric sherd and flake at that level of the shovel test. Its presence was not attributed to any intrusion or bioturbation. The generic soil profile for this site has a dark yellowish brown to light yellowish brown (10YR 3/4 to 10YR 6/4) sandy loam in the upper 40 to 60 cm, underlain by a yellowish brown to very pale brown (10YR 5/4 to 10YR 7/3) compact silty loam extending to 70 cm below surface. Artifacts were recovered from the sandy loam in the upper 50 cm of the shovel tests. Although in a few instances cultural material was found at 60 to 70 cm beneath the surface (Shovel Tests 1, 9, 19, and 28), the artifacts were still collected from within the sandy loam above the highly compact silty loam.

The artifact sample recovered from surface and subsurface contexts at site 41BW553 contains 63 prehistoric ceramics, one utilized flake, 40 pieces of lithic debitage, three pieces of burned clay, and one burned rock. The ceramic sample is composed of 58 body sherds and five rim sherds. Clay or grog is the most common apparent tempering material ($n=54$; 85.7 percent). Clay/grog in combination with bone is also present ($n=8$; 12.7 percent), along with one sherd which appears to be tempered with mica (1.6 percent). Sherd thicknesses range from 4.0 to 9.0 mm (mean = 6.3 ± 1.3 mm; mode = 6 mm). Although the majority of the sherds ($n=51$; 80.9 percent) are plain, decorative elements include engraving ($n=4$), fine engraving ($n=1$), overhanging line incising ($n=1$), tool punctation ($n=1$), neck banding ($n=1$), and brushing ($n=2$). Tentatively identified types present in the sample include Nash Neck Banded from the surface (Figure 10a) and Coles Creek Incised, *var. Coles Creek* from Shovel Test 18, Level 2 (Figure 10b).

The utilized flake is an Ogallala quartzite tertiary flake, 6.3 to 9.5 mm in size. The distal edge of this flake bears expedient use-wear, specifically unifacial microflaking on the dorsal surface. The remaining unmodified lithic debitage sample contains all of the elements of the reduction sequence: primary flakes ($n=4$), secondary flakes ($n=14$), tertiary flakes ($n=10$), bifacial thinning flakes ($n=8$), and shatter ($n=4$). Chert was the dominant material type among the lithic debitage ($n=28$), with quartzite ($n=5$), Ogallala quartzite ($n=5$), Woodford chert ($n=1$), and silicified wood ($n=1$) also represented. The lithic debitage varied in size, with four measuring less than 6.3 mm in size, 17 from 6.3 to 9.5 mm, 10 from 9.5 to 12.5 mm, eight from 12.5 to 19 mm, and two from 19 to 25 mm in size. Other artifact types represent a small proportion of the sample. Three pieces of burned clay, weighing 1.2 grams, were found in Shovel Test 18. The single piece of burned rock was quartzite and weighed 98.3 grams.

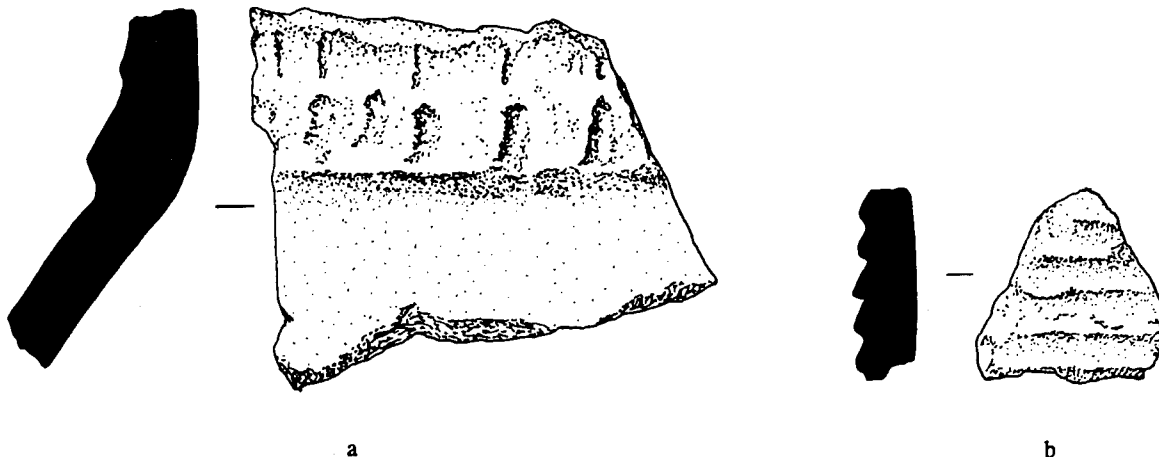


Figure 10. Decorated ceramic sherds recovered from site 41BW553: (a) Nash Neck Banded (surface); (b) Coles Creek Incised (Shovel Test 18, Level 2) (Scale 1:1).

In addition to the ceramics and lithics, at least 15 shell fragments and 11 bone fragments were collected from site 41BW553. One shell fragment and two faunal elements were collected from backdirt on the surface of the site just west of the datum. One of the bone fragments was a calcined indeterminate mammalian element exhibiting a spiral fracture (angular fractures are indicative of breakage that occurs after the bone has lost its collagen, either due to time, weathering, or exposure to fire, while spiral fractures indicates that the bone was broken while fresh). The other was a portion of the distal end of a left tibia from a deer (*Odocoileus* sp.). The other 14 shell fragments and nine faunal elements were recovered from subsurface shovel testing. Twelve shell fragments came from Levels 1, 2, and 3 (0 to 60 cm below the surface) of Shovel Test 28, along with one unburned and five burned (either charred or calcined) bones from medium to large mammals (most likely deer), exhibiting angular fractures and light weathering. The remaining two shell fragments were recovered from 20 to 40 cm below the surface in Shovel Test 19, along with a medial shaft portion of the right distal humerus of an Artiodactyl. This latter fragment, probably from a deer, exhibited marked weathering and an angular fracture. Another Artiodactyl fragment, this one calcined and also exhibiting light weathering and an angular fracture, came from 40 to 60 cm below the surface in Shovel Test 1. It was identified as a portion of the distal articular condyle of a metapodial. The remaining faunal element recovered from site 41BW553 was identifiable only as a vertebrate. It was lightly weathered, angularly fractured, and calcined.

In summary, site 41BW553 is a very large, moderate density prehistoric site located on a terrace remnant just north of Flag Lake. Ceramic and lithic artifacts, along with burned faunal remains, clay, and rock, were recovered during shovel testing of the site. Diagnostic ceramics recovered from the site indicate occupations during the Formative Caddoan (i.e., Coles Creek Incised) and Late Caddoan (i.e., Nash Neck Banded) periods. The presence of fine engraving (cf. Holly Fine Engraved) and brushing further emphasizes the presence of these two occupation periods. The range of artifacts present at the site is believed to reflect diverse activities. On the basis of its size and subsurface artifact density, site 41BW553 is classified as a high intensity occupation, with multiple components which may have served residential functions. Although bioturbation, and possibly some looting, have affected the site, its impact to the cultural resources is believed to have been minimal, given the depth at which artifacts were recovered. In addition, the site seems to have good faunal preservation. Thus, the site is judged to have excellent contextual integrity and excellent research potential. Therefore, it is recommended that site 41BW553 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41BW554

Site 41BW554 is a medium-sized, low density historical site located at the juncture of the WOCMA boundary and a county road known locally as Chicken Ranch Road. It is at an elevation of 78 m amsl and covers about 4,200 m² (70-x-60 m). The nearest water source is an unnamed, intermittent drainage about 200 m to the southwest. The soil in this area is mapped as being Annona loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). Vegetation observed at the site includes bois d'arc, hickory, oak, and sycamore, with an understory composed of blackberry and greenbriar, along with mixed grasses and weeds. The Dalby Springs 7.5' USGS topographic map (1965, photorevised in 1975) shows a structure at this location. Earth and rubble piles observed on this site, the remains of bulldozer activity, make it quite obvious that this structure has been obliterated leaving what remains of this cultural resource with poor contextual integrity.

Eight shovel tests were dug at site 41BW554, seven of which are located within the site boundary as determined by surface remains (Figure 11). Only three artifacts were collected through subsurface shovel testing at the site, for an average subsurface density of .4 artifacts per onsite shovel test. These artifacts came from the upper 20 cm of both silty loam and silty clay soil. Another 10 artifacts were collected from the surface. The soil on the site consisted of a thin surface layer of yellowish brown to dark yellowish brown (10YR 5/4 to 10YR 4/4) silty loam, generally 10 cm thick, underlain by a dark red to yellowish red (2.5YR

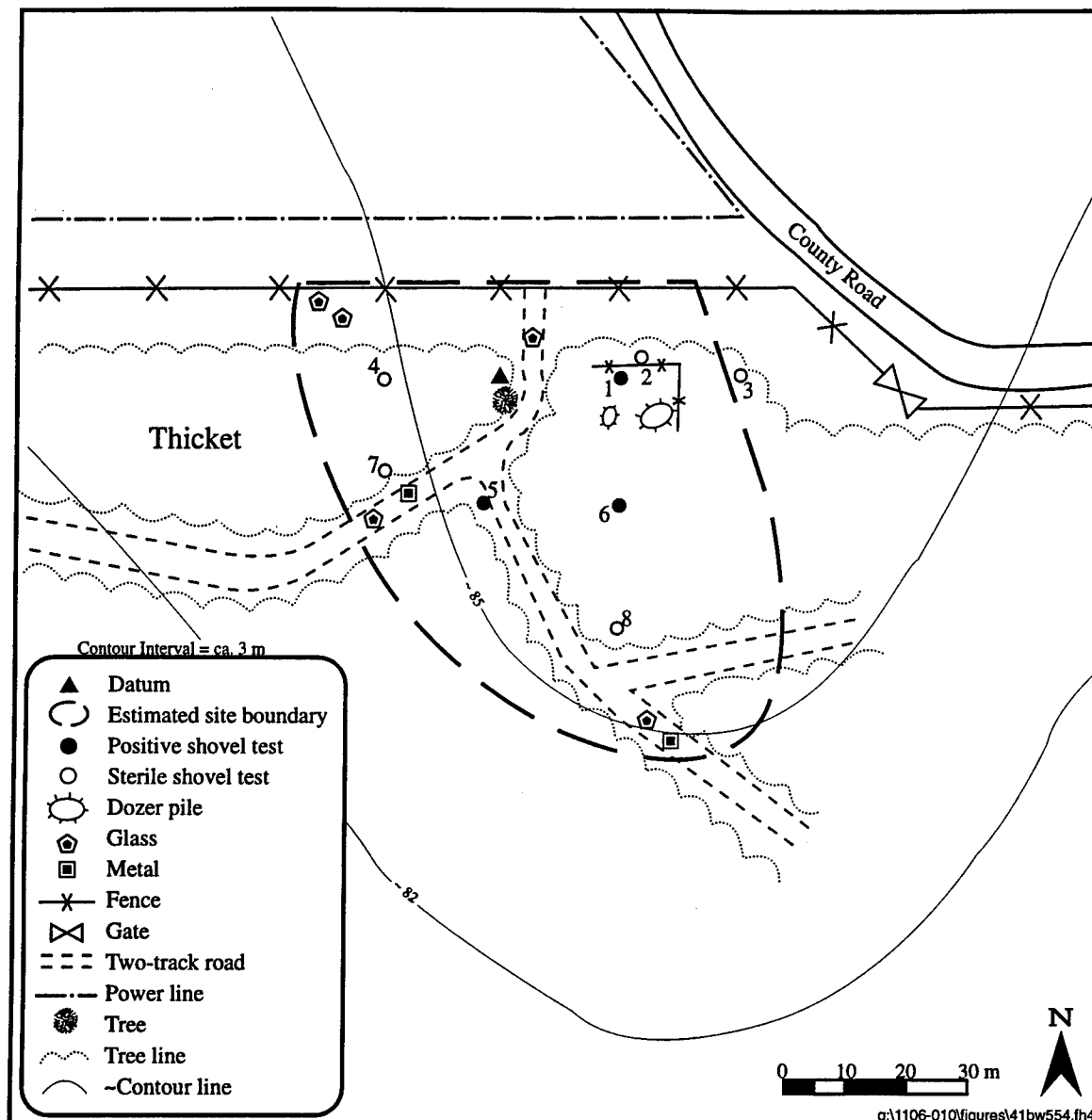


Figure 11. Pace and compass map of site 41BW554.

4/6-8 to 5YR 5/6) and reddish brown (5YR 4/4) silty clay. The silty clay was encountered at the surface in half of the shovel tests.

Thirteen historic artifacts were collected at site 41BW554, three from a subsurface context and the remaining 10 from the surface. The subsurface artifacts consist of a nondiagnostic iron ring, a clear glass bottle fragment made with an automatic bottle machine (ABM; post-1910), and a slightly burned piece of black bakelite (1907-1940s). These artifacts fall, respectively, into the activities, domestic, and indeterminate (but most likely domestic) class of historic artifacts. The remaining 10 artifacts collected from the surface include three domestic items, four personal items, and three activities related items. The domestic category includes two undecorated whiteware ceramic sherds (post-1890), together with a single light green, relief molded, soft drink bottle fragment (post-1910) with the word “. . . or . . .” embossed on it. All of the personal items are

amber brown snuff bottle fragments, three from well-rounded, snuff bottle bases (post-1920) and one from the lip of the bottle (post-1910). The three activities items were a harness buckle, a track line chain link, and a piece of lead.

In summary, site 41BW554 is a medium-sized, low density historical site located at the juncture of the WOCMA boundary and a county road known locally as Chicken Ranch Road. The artifacts collected from this site, especially the domestic and personal artifacts, suggest that it was a domestic occupation dating to the early twentieth century. On this basis, as well as on the basis of its size, the site has been classified as a high intensity occupation. A structure is shown at this location on the Dalby Springs USGS quadrangle (1965, photorevised 1975). However, piles of earth and rubble observed on this site, the remains of bulldozer activity, make it clear that this structure has been obliterated, leaving the remains of this site with extremely poor contextual integrity and little research potential. Consequently, it is recommended that site 41BW554 be considered ineligible for inclusion in the NRHP and that no further work be required.

Site 41BW555

Site 41BW555 is a small, high density prehistoric site located in a clearing on a terrace remnant in the floodplain of the Sulphur River. It is at an elevation of 76 m amsl and encompasses an estimated 1,575 m² (45-x-35 m). The nearest modern water source is a small, unnamed drainage about 100 m to the southwest. The site itself is directly above a drainage that might be an old channel of the Sulphur River. The soil in this area is mapped as being Annona loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). As mentioned earlier, the site area has been cleared; it lacks a developed canopy of trees. Vegetation in the area is limited to a few bois d'arc, oak, and willow trees along with a greenbriar, locust, and mixed grass understory. With the only disturbance of the site coming from past clearing of the area, contextual integrity is judged to be good.

Eight shovel tests were excavated in defining the site. Four of these were within the site boundary (Figure 12). Twenty-five artifacts were collected from these four shovel tests, giving an average subsurface density of 6.3 artifacts per onsite shovel test. All artifacts were recovered from silty loam at depths up to 60 cm below the surface. The soil profile viewed in shovel testing consisted of a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/6) silty loam. This silty loam was observed to extend 80 cm below the surface. An underlying subsoil was not reached in any shovel test.

As noted above, 25 prehistoric artifacts were collected from site 41BW555. Artifact classes include prehistoric ceramics (n=1), finished bifacial tools (n=2), utilized flakes (n=1), unmodified debitage (n=20), and burned rock (n=1). A single prehistoric ceramic sherd was the only artifact recovered from Shovel Test 4. It was a plain body sherd tempered with clay/grog. It was 5.0 mm thick. Of the two finished bifacial tools, one is complete and the other is a fragment. The complete tool is made of a light reddish brown chert that exhibits a glossy, waxy look typical of heat treating. It is a short, triangular dart point, typed as an Edgewood, which measures 31 mm long, 18 mm wide, and 7 mm thick, and weighs 3.5 grams (Figure 13). One blade edge is straight while the other is slightly concave. Prominent, unbarbed shoulders give way to concave stem edges that expand at the base, but not as wide as the shoulders. The base itself is concave. The point is plano-convex in cross section, with one surface retaining an intact secondary flake scar. Thinning or retouching flakes do not reach the center of this slightly concave surface. All that remains of the other bifacial tool is a stem/base fragment. The size of the fragment (12 mm long, 14 mm wide, and 6 mm thick with a weight of 1.0 gram) indicates it is a portion of a dart point. It is made of a large grain, vitreous-looking, weak red quartzite. The edges of the stem are straight and round at the base. The utilized flake is made of a mottled strong brown chert. It is a roughly square, bifacial thinning flake exhibiting use-wear along one of its four edges. The side opposite the worn edge is snap fractured. The use-wear appears to be on a deliberately retouched surface, while the other surface does not appear to have been

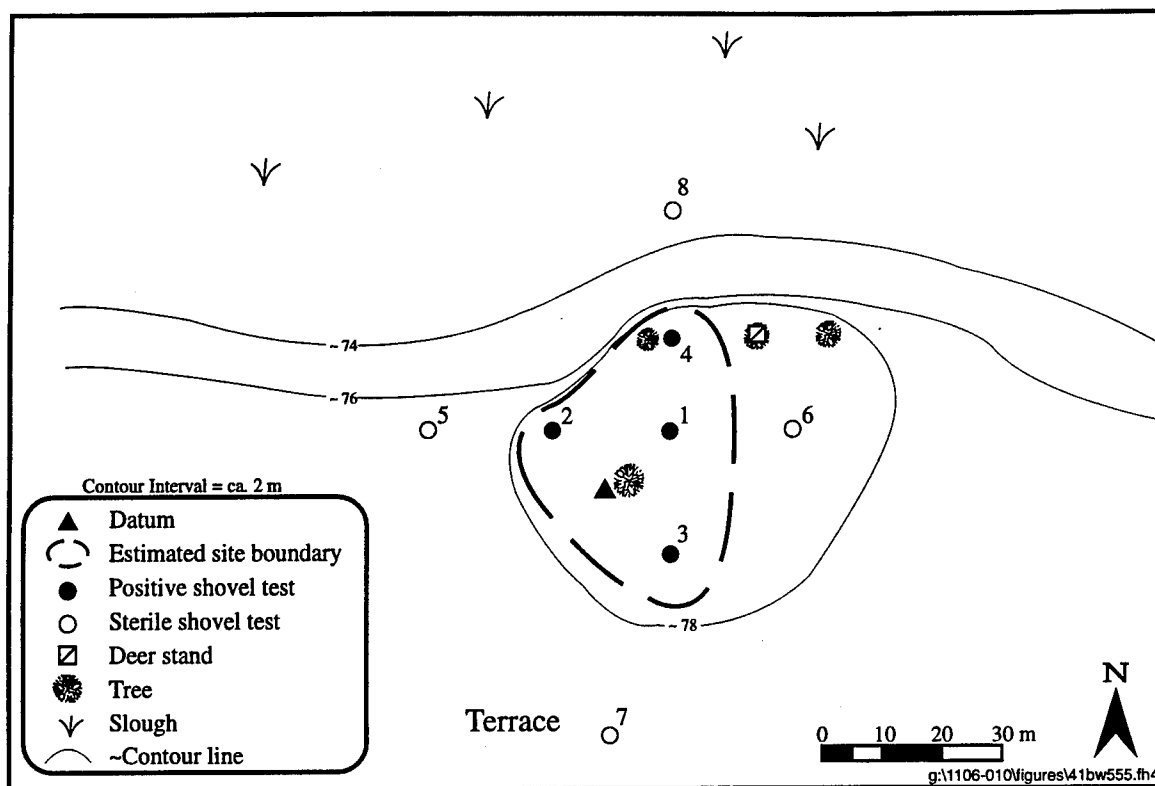


Figure 12. Pace and compass map of site 41BW555.

retouched. The sample of unmodified lithic debitage consists of 20 flakes, including one primary flake, three secondary flakes, five tertiary flakes, and 12 bifacial thinning flakes. The dominant raw material type is chert ($n=16$), with only small quantities of quartzite ($n=2$) and Ogallala quartzite ($n=2$) being recovered. The lithic debitage is relatively small, with three flakes less than 6.3 mm in size, 12 from 6.3 to 9.5 mm in size, and five pieces between 9.5 and 12.5 mm in size. The one burned rock fragment recovered was sandstone and weighed 1.6 grams.

In addition to the items described above, one historic domestic item was recovered in Shovel Test 1. This was a clear bottle glass fragment, made with an ABM (post-1910). It is assumed to be relatively recent and is not believed to indicate an historic component.

In summary, site 41BW555 is a small, high density prehistoric site located in a clearing on a small remnant terrace in the floodplain of the Sulphur River. The presence of an Edgewood dart point suggests a Late Archaic component, while the ceramic sherd indicates an Early Ceramic or Caddoan occupation. Despite its small size, the high subsurface artifact density requires that the site be classified as a high intensity occupation. Although one historic artifact was collected, it does not represent a substantial historic utilization of the area. The contextual integrity of the site is good. Considering these observations, the site is believed to have a good research potential. Consequently, it is recommended that site 41BW555 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations designed to determine its NRHP status can be undertaken.

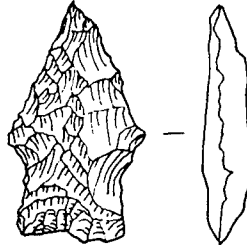


Figure 13. Edgewood dart point recovered from site 41BW555 (Shovel Test 2, Level 3) (Scale 1:1).

Morris County

Site 41MX48

Site 41MX48 is a medium-sized, moderate density prehistoric site located on a low terrace covered with natural rises overlooking White Oak Creek. The site is at an elevation of 79 m amsl and encompasses an estimated 4,800 m² (80-x-60 m). The nearest water source is White Oak Creek, which forms the southern boundary of the site. The soil in the site area is mapped as being Woodtell fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site is divided by a fence, the area on the east side of which is cleared while the west is wooded with little underbrush. Vegetation on the cleared side of the fence consisted of sapling trees and a thick carpet of mixed grasses up to 1 m in height, while the area west of the fence was wooded with oak, hackberry, and hickory along with a thin understory of greenbrier and mixed grass. The eastern portion of the site has been cleared by heavy machinery; bulldozer piles were noticed along the west side of the fence. Thus, man-made disturbances affecting the site include fence construction and machine clearing of ground surface vegetation. However, the effects of these man-made impacts are probably not the most damaging, since White Oak Creek is eroding the southwestern portion of the site. Artifacts were seen and collected from the cutbank formed by the creek. Bioturbation is also heavy on the rises which cover the site. Contextual integrity is judged to be fair.

Eleven shovel tests were excavated at site 41MX48, six of which contained cultural material (Figure 14). Twenty-nine artifacts were collected from these six shovel tests, yielding an average subsurface artifact density of 4.8 artifacts per onsite shovel test. Also, a surface collection made along the southwest eroded edge of the site near Shovel Test 5 consisted of three artifacts, an unfinished biface fragment and two pieces of baked clay. A generic soil profile for the site begins with a brown to yellowish brown (10YR 5/3 to 10YR 5/6) silty loam, usually 60 cm in depth. This is underlain by a yellowish brown (10YR 5/4 to 10YR 5/6) silty clay. Artifacts were recovered down to 40 cm below surface, except in Shovel Test 1 where artifacts were found to 80 cm below surface.

Thirty-two artifacts were collected at site 41MX48. They consist of four prehistoric ceramic sherds, two pieces of baked clay, two unfinished biface fragments, one uniface, and 23 pieces of unmodified debitage. The ceramic sherds collected from the site consist of three body sherds and a single rim sherd, all plain. All are tempered with clay/grog and range from 4.0 (n=1) to 5.0 (n=3) mm thick. The two fragments of baked clay are unimpressed and weigh a total of 4.0 grams. Both of the unfinished biface fragments are believed to be dart point preforms. One of these is a proximal/medial fragment with the indistinct, squared shoulders and contracting, rounded stem typical of a Gary dart point. It is made of quartzite with many inclusions;

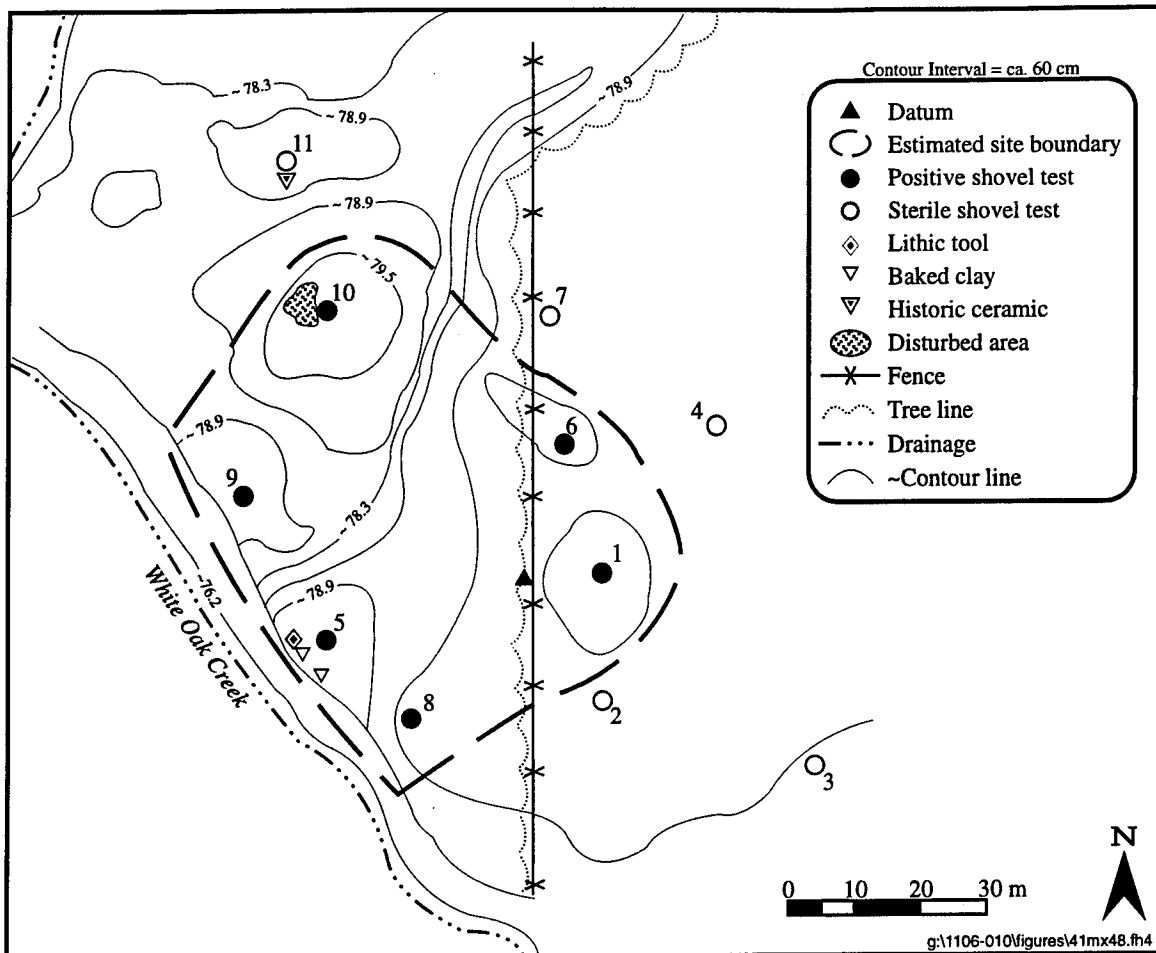


Figure 14. Pace and compass map of site 41MX48.

measures 38 mm long, 30 mm wide, and 13 mm thick; and weighs 12.9 grams. The other dart point preform is a distal/medial fragment which retains cortex on one surface. It is made of chert; measures 31 mm long, 28 mm wide, and 14 mm thick; and weighs 9.0 grams. The uniface is an end scraper made on a primary flake. It is made of silicified wood, specifically palmwood, and measures 22 mm long, 29 mm wide, and 10 mm thick, with a weight of 5.7 grams. It is plano-convex in cross-section and shows use-wear, or microflaking, on the cortex-covered dorsal surface of the distal edge opposite the bulb of percussion. The lithic debitage consists of one primary flake, four secondary flakes, 12 tertiary flakes, and six bifacial thinning flakes. The debitage is fairly evenly divided between quartzite (n=10) and chert (n=9), with a smaller amount of Ogallala quartzite (n=4) also represented in the sample. The lithic debitage also tends to be small, with three pieces less than 6.3 mm in size, 12 between 6.3 and 9.5 mm, four from 9.5 to 12.5 mm, three from 12.5 to 19 mm, and one larger than 25 mm.

One historic artifact, a ceramic stoneware sherd, was collected from the surface of site 41MX48. This domestic artifact has a salt-glazed exterior and a natural clay slipped interior. Dates of manufacture for this stoneware sherd range from 1840 to 1900. Since no other historical remains were recovered from this site, no historical component is identified.

In summary, site 41MX48 is a medium-sized, moderate density prehistoric site located on a low terrace overlooking White Oak Creek. Although a single historic artifact was surface collected from the site, no evidence of a significant historical occupation of the site was located. The presence of a possible preform for a Gary point suggests an Early Ceramic period occupation, while the undecorated ceramics could indicate either an Early Ceramic or a Caddoan date. Based on the site's size, subsurface density, and the variety of artifacts recovered, the site has been classified as a high intensity occupation. Given the natural and man-made disturbances to the site, specifically heavy bioturbation and the cutbank erosion caused by White Oak Creek along with fence construction and machine clearing of ground surface vegetation, the site is judged to have fair contextual integrity. In spite of these disturbances, and recalling that artifacts were generally recovered from 40 cm and, in one case, 80 cm below surface, this site is believed to have good research potential. Consequently, it is recommended that site 41MX48 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavation can be conducted to determine its NRHP status.

Site 41MX49

Site 41MX49 is a multicomponent site composed of a small, moderate density prehistoric component partially overlain by a small, high density historic component. It is located on an upland knoll, at an elevation of 82 m amsl and covers an estimated 3,575 m², with the prehistoric occupation occupying about 2,400 m² and the overlapping historic component covering approximately 1,300 m². The nearest water source is an unnamed, intermittent drainage approximately 300 m to the northeast. Soil in the site area is mapped as being Woodtell fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). Most of the site is covered with dense thickets of locust trees intermingled with a very dense understory of greenbriar, while the western part of the site is in a cleared field covered with 1- to 1.5-m high grass. Shovel testing indicates that the upper 20 cm of the site area has been disturbed, with the upper 60 cm found to be highly disturbed in Shovel Test 10. This disturbance has most likely been caused by heavy machinery brought in to clear the area for pasturing and to construct the high-voltage power line towers just east of the site. The thicket of locust trees is additional evidence of this disturbance. A two-track, light duty road parallels the southern border of the site.

Twelve shovel tests were excavated in and around site 41MX49, nine of which produced 128 artifacts (Figure 15). Twenty-seven artifacts were collected from the eight shovel tests that defined the prehistoric component, giving that occupation an average subsurface density of 3.4 artifacts per onsite shovel test. One-hundred-and-one (101) historic artifacts were recovered from the seven shovel tests on the historic component, for a subsurface artifact density of 14.4 artifacts per onsite shovel test. Historic artifacts were recovered to 20 cm in Shovel Tests 1, 6, and 7; to 40 cm in Shovel Tests 2 and 3; and to 60 cm in Shovel Test 10. The prehistoric material was recovered to 20 cm in Shovel Tests 1 and 4; to 40 cm in Shovel Tests 8 and 9; and between 40 and 60 cm in Shovel Tests 2 and 6. Historic and prehistoric material was mixed in Shovel Tests 1, 2, and 6. In Shovel Test 1 both historic and prehistoric remains were mixed within 20 cm of the surface. In Shovel Tests 2 and 6, however, the historic material was overlying the prehistoric, with both present in the 20-40 cm level in the former, but with no mixed levels in the latter. The generalized soil profile at the site begins with a very dark brown to brown (10YR 3/3 to 10YR 4/3) silty loam in the upper 20 cm. This is underlain by dark yellowish brown to brownish yellow (10YR 4/6 to 10YR 6/6) silty loam 20 to 60 cm thick. This is in turn underlain by a yellowish red (5YR 4/6) clay at 80 cm below the surface.

The prehistoric sample from site 41MX49 totaled 27 artifacts, including one uniface, 17 pieces of unmodified debitage, one burned rock, and eight pieces of baked clay. The uniface consists of a double side scraper made of chert, measuring 29 mm long, 12 mm wide, and 6 mm thick, and weighing 2.4 grams. It is plano-convex in cross-section, with retouch, along with heavy use-wear, crushing, and microflaking on the dorsal surface along both of the steep lateral edges. One lateral working edge is convex while the other is slightly

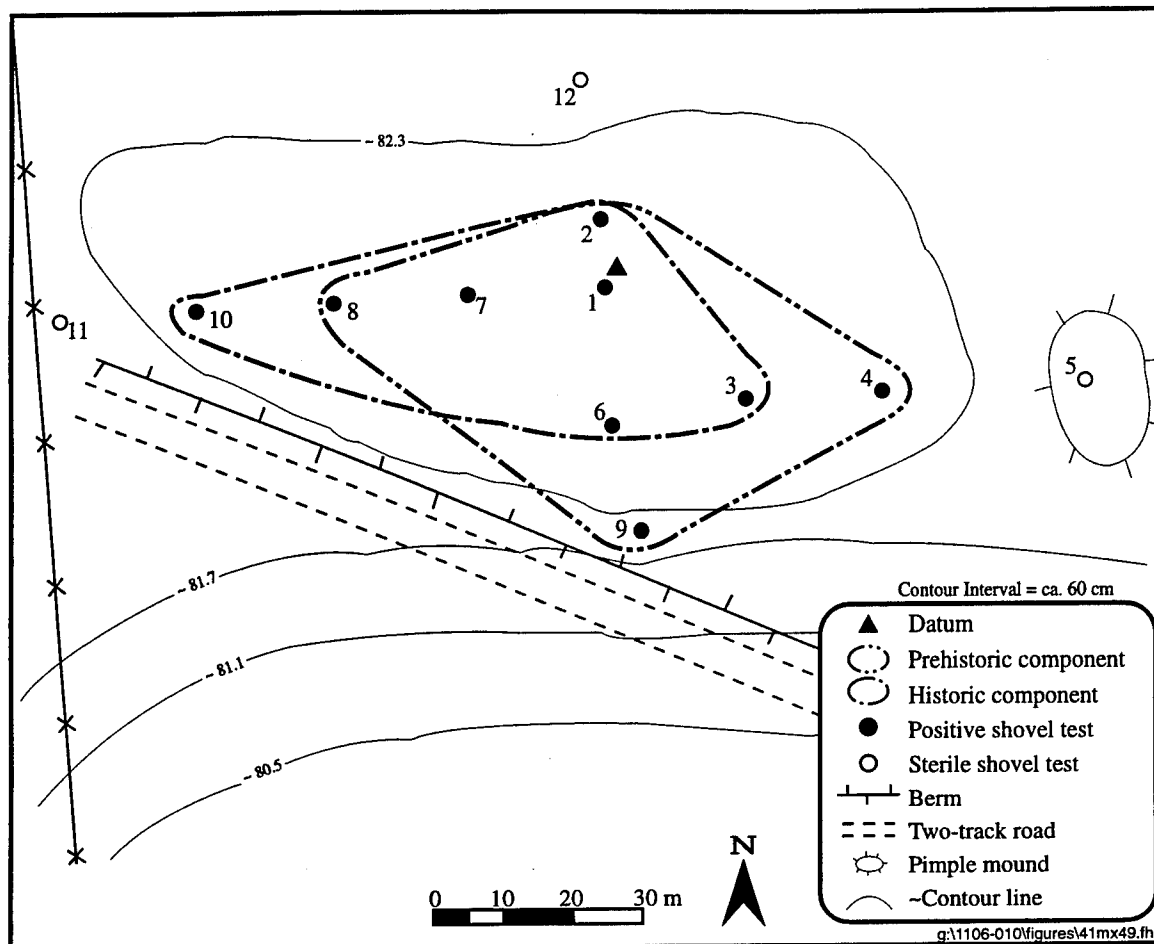


Figure 15. Pace and compass map of site 41MX49.

concave. The 17 pieces of lithic debitage include four primary flakes, four secondary flakes, three tertiary flakes, five bifacial thinning flakes, and one piece of shatter. The dominant raw material type for the lithic debitage is quartzite ($n=11$), with chert ($n=2$) and Ogallala quartzite ($n=4$) also being present. This lithic debitage sample has six flakes less than 6.3 mm in size, one between 6.3 and 9.5 mm, five from 9.5 to 12.5 mm, four from 12.5 to 19 mm, and one piece from 19 to 25 mm in size. The burned rock is quartzite and weighed 4.9 grams. The eight pieces of baked clay included two impressed and six unimpressed fragments.

In all, 101 historic artifacts were collected from site 41MX49, 45 from the domestic category, 30 from the architecture category, 17 from the indeterminate category, and nine from the activities category. Domestic items collected include bottle glass, stoneware, whiteware, and tin can fragments. The category is dominated by tin can fragments ($n=24$; post-1900) that, although numerous, all came from one level in Shovel Test 3 and probably represent one disintegrated can. The three pieces of whiteware consist of two slightly burned, undecorated whiteware sherds (post-1890) and one ivory tinted whiteware sherd (post-1920). Stonewares from the site include one Bristol slipped exterior/natural clay slipped interior sherd (1890-1915), four two-tone exterior/natural clay slipped interior sherds (three of which cross-mend; 1890-1910), and one natural clay slipped interior/exterior sherd (1875-1900). The bottle glass sample includes five clear bottle glass fragments, all of which are ABM (post-1910); five manganese solarized (1880-1920); one embossed amber/brown bottle glass fragment (post-1900); and one olive bottle glass fragment. Included among the

manganese glass are a hand-finished lip and neck fragment from a flared prescription bottle and a basal sherd.

The architectural category includes 19 wire nails (post-1890), three cut nails (1840-1890), and eight hand-pressed brick fragments (pre-1890), one of which is glazed. Most of the nails (n=12) were broken, while the remainder are size 5d (n=1), 6d (n=1), 7d (n=1), 8d (n=3), 9d (n=1), and 10d (n=3). Both the indeterminate and activities category contain a miscellany of artifacts. The indeterminate category consists of 15 pieces of iron (both flat and cast) and two pieces of burned, clear glass. Activities-related items include the possible rim of a metal bucket, two pieces of fence wire, a .22 caliber rimfire cartridge case headstamped "R" (1906-1916), four pieces of wire, and a large, square-headed screw about 17.5 cm long.

Seven fragments of bone were recovered from subsurface shovel testing at site 41MX49 (see Appendix E). Four of the seven came from Shovel Test 2, 20 to 40 cm below surface. Two were lightly weathered, small, indeterminate mammal vertebra exhibiting angular fracturing indicative of breaks that occur after the bone has lost its collagen, either due to time, weathering, or exposure to fire. One of these was a fragmentary portion of a vertebra, while the other was a complete cervical vertebra with an unfused centrum epiphysis, indicating that the element was still growing at the time of death of the animal. The remaining two faunal elements recovered from Shovel Test 2 were both lightly weathered bones identified as squirrel (*Sciurus* sp.). Both were left side elements with angular fracturing. They were the glenoid fossa and incomplete blade portion of a scapula together with the os coxa portion of a pelvis. Two more faunal elements were recovered from Shovel Test 3. A charred plastron fragment of an unidentified soft-shell turtle (*Testudinata*) was recovered from within 20 cm of the surface. It was lightly weathered and exhibited angular fracturing. From 20 to 40 cm below surface, came the charred diaphyseal fragment of a metapodial from a medium-sized Artiodactyl (an even-toed ungulate), most likely deer. It was also lightly weathered and exhibited angular fracturing. The final faunal element from site 41MX49 was recovered from within the upper 20 cm of Shovel Test 6. This lightly weathered, gnawed, calcaneus fragment came from the left side of a raccoon (*Procyon lotor*). The element was angularly fractured. Although the sample of faunal remains recovered from site 41MX49 appears to be more prehistoric than historic in nature, and lacks any evidence for recent methods of butchering or food preservation, it is not certain that it is actually a sample of prehistoric date. Although Shovel Test 2, Level 2, and Shovel Test 6, Level 1, contained both prehistoric and historic remains in addition to the faunal remains, Shovel Test 3 contained only historic remains. This suggests that at least some of the faunal remains are associated with the historic occupation. However, the lack of prehistoric remains from Shovel Test 3 does not prove that the faunal remains are not prehistoric, since this test was located in the approximate center of the area identified as the prehistoric component. Charcoal samples were collected from the upper 20 cm of Shovel Tests 1 and 6, but the association of these is also unknown.

In summary, site 41MX49 is a multicomponent site located on an upland knoll. It consists of a small, medium density prehistoric component partially overlain by a small, high density historic occupation element located on an upland knoll. The prehistoric component is undated, while the historic occupation appears to date to the late nineteenth and early twentieth centuries. Both components have been classified as high intensity occupations, based on the subsurface density and nature of the artifact samples. Both occupations may have been residential in nature, based on the presence of possible prehistoric architectural daub and on the domestic nature of the historic artifact sample. The overall contextual integrity of the site is judged to be only fair to good. The archeological remains were deposited on a relatively stable upland surface and the upper 20 cm or so of deposit appears to have been subsequently disturbed by heavy machinery, with resultant mixing of the prehistoric and historic remains. Consequently, it is not clear which component is associated with the small faunal sample and the fragments of baked clay daub recovered from the site. As a result of the stratigraphic mixing present at site 41MX49, the site is felt to have little or no research potential, and it is recommended that the site be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX50

Site 41MX50 is a small prehistoric surface scatter located on the top and southern slope of an upland ridge. The site is at an elevation of 82 m amsl and covers an estimated 520 m² (40-x-13 m). The nearest water source to the site is a tributary of Molly Clark Slough, about 100 m west. The soil on the site is mapped as being Woodtall fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is partially within an electric power line right-of-way, in an open field of mixed grass and weeds, greenbriar, and sapling pin oak. The site area is heavily eroded and gullied, and is to the east of the WOCMA boundary fence. In fact, the entire southern part of the ridge is deflated and actively gullying. Vegetation in this eroded area is sparse and patches of exposed clay are numerous. Given these impacts, the contextual integrity of the site is considered to be poor.

All eight shovel tests excavated at site 41MX50 were sterile (Figure 16). Two of these negative shovel tests were within the site boundary, as defined on the basis of surface artifacts. The soil profile noted in these shovel tests began with a brown to yellowish brown (10YR 5/3 to 10YR 5/8) silty clay, generally 10 to 20 cm thick, underlain by a dark red to reddish brown (2.5YR 4/6 to 5YR 4/4) clay subsoil. The site consists of scattered surface artifacts only. Just one of these, a diagnostic finished biface tool, was collected. The artifacts were resting on the exposed clay subsoil, laid bare by erosion and clearing of the area.

As noted above, only one artifact, a finished bifacial tool, was collected from site 41MX50. This was the proximal/medial portion of an Elam dart point, measuring 37 mm long, 20 mm wide, and 8 mm thick, and weighing 6.7 grams. It is made of a poor quality chert. It appears that less than 8 mm of the tip is missing. The point is crudely finished. Hinge flakes have piled up on the fairly straight lateral edges of the blade and the parallel-sided stem. The stem itself is rectangular in shape and accounts for half of the overall length of the dart point. Other material observed on the surface of the site but not collected included 12 nondiagnostic lithic artifacts, specifically 10 flakes and two burned rock fragments.

In summary, site 41MX50 is a very small prehistoric surface scatter located on an upland ridge. A fragment of an Elam dart point from the site suggests a Late Archaic date. Due to its small size and lack of subsurface deposits, this site has been classified as a low intensity occupation. In fact, it is possible that this material may not be in original context at all and may have eroded from upslope, an area outside the survey area to the west of the property fence. In light of this, the site is felt to have no research value at all. It is therefore recommended that site 41MX50 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX51

Site 41MX51 is a very large, low density prehistoric site located on a number of low, natural rises on the northern end of a large terrace in the floodplain of the Sulphur River. It is approximately 79 m amsl in elevation and encompasses roughly 23,000 m² (230-x-100 m). The nearest source of water to the site is Molly Clark Slough, which is about 200 m to the east. Soil in the site area is mapped as being Woodtall fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded with ash, elm, hackberry, oak, and sycamore trees, along with a moderately dense understory of pin oak and other sapling trees, greenbriar and other mixed vines, palmetto, and mixed grasses and weeds. Bioturbation was heavy in some areas of the site and generally restricted to the natural rises (as were the positive shovel tests). Limited erosion was present on the western edge of the terrace.

Twenty-six shovel tests were excavated in and around site 41MX51, 15 of which were within the site boundary (Figure 17). Thirty-four artifacts were collected from the subsurface testing, for an average density of 2.3 artifacts per onsite shovel test. These artifacts were almost all recovered from the natural rises, in

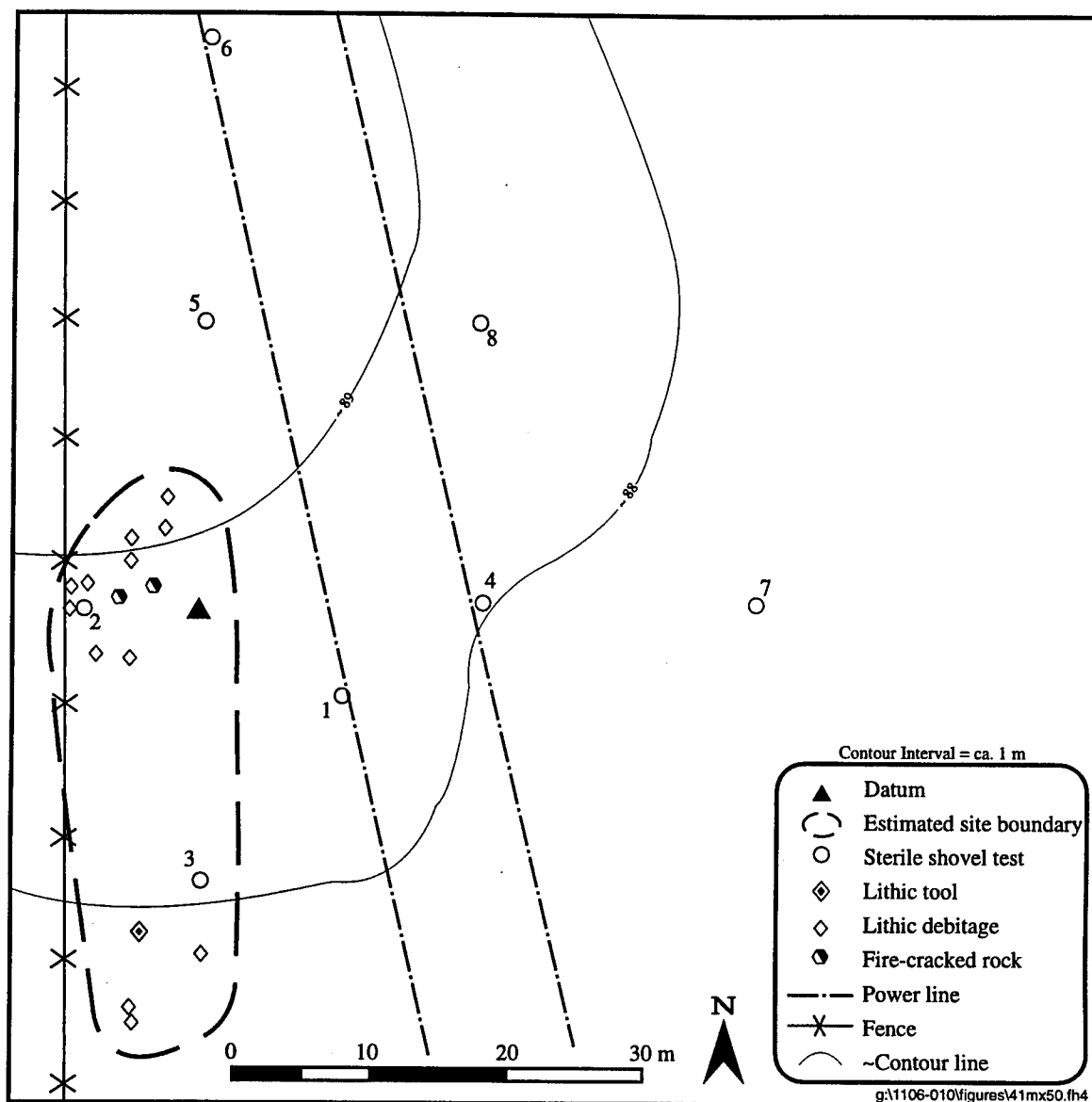


Figure 16. Pace and compass map of site 41MX50.

silty loam soil at depths up to 60 cm beneath the surface. A generalized soil profile for the site consists of a brown to yellowish brown and brownish yellow (10YR 4/3 to 10YR 5/8 and 10YR 6/6) silty loam, up to 60 cm deep. A clay subsoil appears to have been reached only in two sterile units, Shovel Tests 8 and 22, when a brown (7.5YR 4/2) silty clay and a light gray (10YR 7/1) silty clay were found at about 20 cm below the surface.

The artifact sample from site 41MX51 is composed of 20 prehistoric ceramic sherds, 13 pieces of unmodified debitage, and one unworked burned rock fragment, for a total of 34 artifacts. In addition, some fragments of ground stone and one flake were observed on the surface of the site, but not collected. The ceramic sample consists of 17 body sherds and three rim sherds, all of which are tempered with clay/grog. Sherd

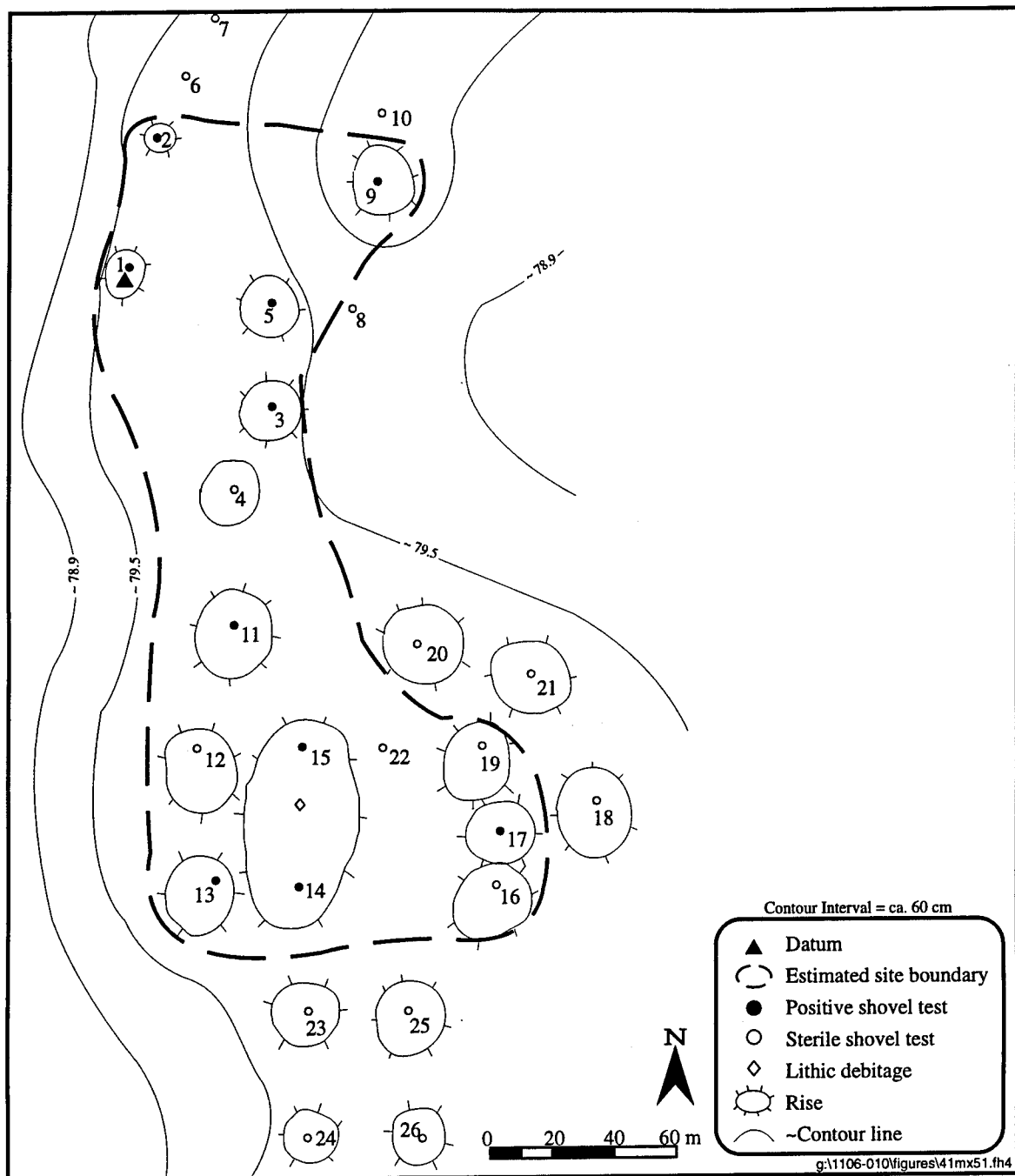


Figure 17. Pace and compass map of site 41MX51.

thickness ranges from 4.0 to 8.0 mm, with a mean of 5.8 ± 1.1 mm and a mode of 6.0 mm. Although the majority ($n=15$) of the sherds are plain, two rim sherds are engraved, one body sherd has fingernail impressed bands, another body sherd has an applique node and punctations, and one body sherd is finely brushed. The lithic sample includes six secondary flakes, three tertiary flakes, three bifacial thinning flakes, and one piece of shatter. Raw material types observed among the lithics include chert ($n=5$), Ogallala quartzite ($n=4$), and quartzite ($n=4$). The debitage varies greatly in size, with one less than 6.3 mm in size,

four from 6.3 to 9.5 mm, three from 9.5 to 12.5 mm, four from 12.5 to 19 mm, and one piece larger than 25 mm. The piece of burned rock collected was quartzite and weighed 4.8 grams.

A single fragment of bone was recovered from subsurface shovel testing at site 41MX51. This calcined, mammal bone fragment was recovered from the upper 20 cm of Shovel Test 11. The fragment was lightly weathered and displayed angular fracturing indicative of breakage that occurs after the bone has lost its collagen, either due to time, weathering, or exposure to fire.

In summary, site 41MX51 is a very large, low density prehistoric site located on the northern end of a large terrace in the Sulphur River floodplain. Although none of the ceramics recovered could be typed, the overall sample appears to be Middle to Late Caddoan in age based on the presence of engraving and brushing. Despite having a low density of subsurface artifacts, site 41MX51 has been classified as a high intensity occupation, based on the size of the site and the variety of artifactual material present. The bone fragment suggests good faunal preservation and may indicate the presence of midden at the site, giving the site an excellent research potential. The artifacts were found only on natural rises, suggesting spatially discrete artifact concentrations representing isolated areas of activity or occupation. Consequently, it is recommended that site 41MX51 be considered of unknown potential for inclusion in the NRHP, pending test excavations designed to determine its NRHP status.

Site 41MX52

Site 41MX52 is a medium-sized, low density prehistoric site located on the northern base of an upland ridge. The base of the ridge is at an elevation of 81 m amsl while the top is at 85 m amsl. The site occupies an estimated 3,600 m² (80-x-45 m). The nearest source of water to the site is White Oak Creek, which is about 300 m to the north. The soil on the site is mapped as Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is located in open woodland with pin oak, hickory, sweetgum, sycamore, and juniper. The area below the ridge is an open field, with sapling oak, mulberry, locust, yucca, greenbriar and other vines, and mixed grasses. Light underbrush was noted across the site. Erosion is present on the northern edge of the ridge, along with sheetwash on the ridge top and sides. A north-south fence passes through the site. Contextual integrity is judged to be fair.

In all, 11 shovel tests were excavated at site 41MX52, three of which were within the site boundary, but only two of these contained cultural material (Figure 18). Four artifacts were collected from the onsite shovel tests, for an average subsurface density of 1.3 artifacts per onsite shovel test. All of these subsurface artifacts came from a silt loam less than 20 cm below the surface. In addition to the subsurface artifacts, a small surface scatter of artifacts (a flake, fire-cracked rock, and a finished biface) was found at the base of the ridge defining the northern edge of the site. The finished biface, a dart point, was the only surface artifact collected. These materials are believed to have eroded down from the ridge top. A generalized soil profile for the site revealed by shovel testing consists of a dark yellowish brown to brownish yellow (10YR 4/4 to 10YR 6/6) silt loam, found to be 20 cm deep in six shovel tests, underlain by a brown to light yellowish brown (10YR 5/3 to 10YR 6/4) clay. This clay was encountered at the surface in four of the negative shovel tests. In one these, Shovel Test 11, black (10YR 2/1) alluvial clay was present at the surface.

A small artifact sample (n=5) composed entirely of lithics, including a finished bifacial tool and unmodified debitage, was collected from site 41MX52. The finished bifacial tool is an Edgewood dart point made of silicified wood, measuring 28 mm long, 20 mm wide, and 5 mm thick, with a weight of 1.8 grams. The nearly complete dart point has a short triangular blade with straight edges. The blade is beveled on the right edge of both faces. One shoulder is prominent while the other is missing, apparently due to a flaw in the material encountered while attempting to finish the shoulder. The stem expands slightly, but not as wide as

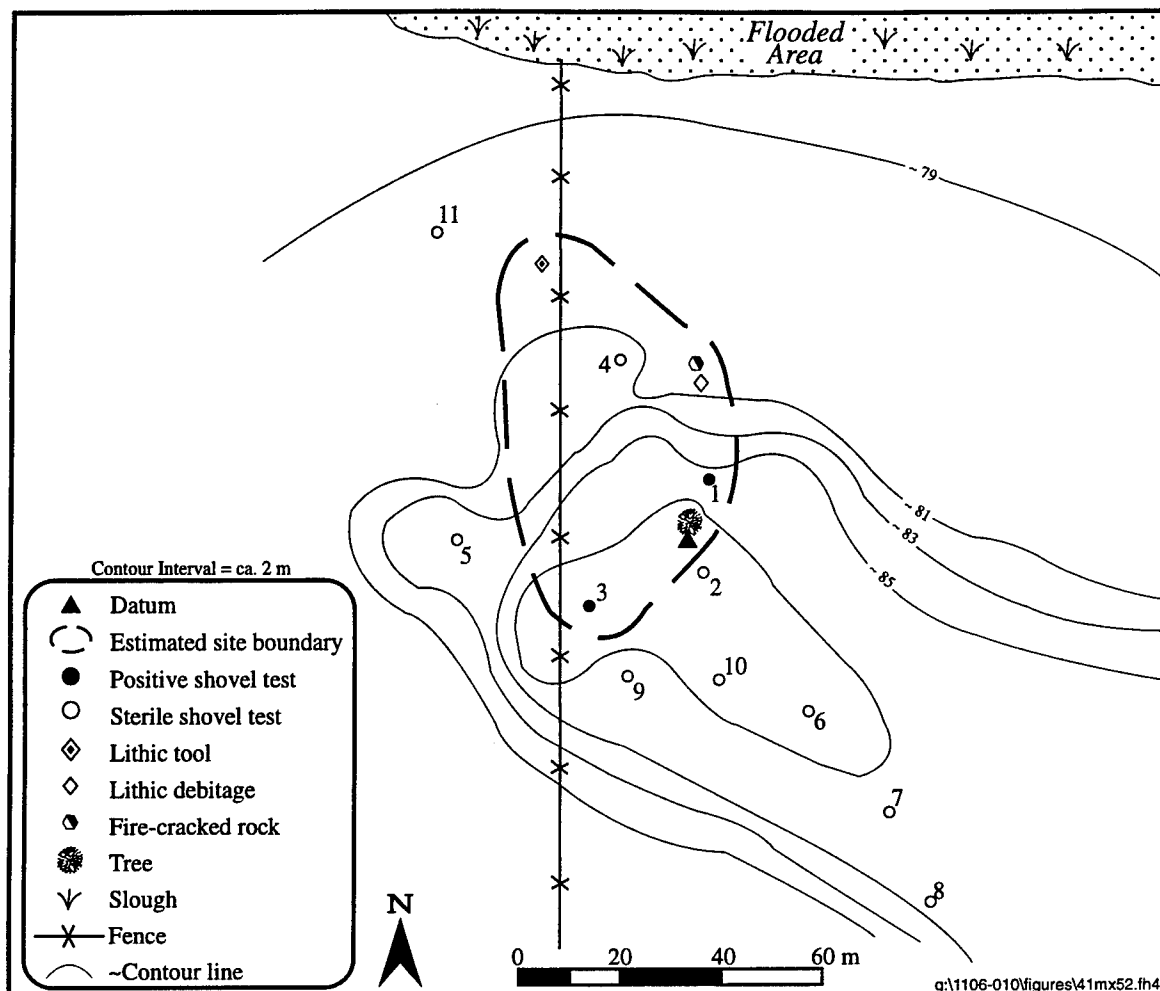


Figure 18. Pace and compass map of site 41MX52.

the shoulders, while the base is slightly concave. The debitage consists of two secondary flakes, one of chert (12.5 to 19 mm) and the other of Ogallala quartzite (9.5 to 12.5 mm); one Ogallala quartzite tertiary flake (9.5 to 12.5 mm); and finally, a single chert bifacial thinning flake (less than 6.3 mm).

In summary, site 41MX52 is a medium-sized, low density prehistoric site located on the northern base of an upland ridge. Based on the presence of an Edgewood dart point, the site is dated to the Late Archaic period. Despite its size, which may be at least partially the result of surface erosion, the site is classified as a low intensity occupation. The sparse amount of cultural material, the shallow depth of deposit, the few surface artifacts, and the site's fair contextual integrity suggest a low probability for intact buried features and a limited research potential. As a result, it is recommended that site 41MX52 be considered ineligible for inclusion in the NRHP and that no further work be required there.

Site 41MX53

Site 41MX53 is a medium-sized, low density prehistoric site located on the edge of the uplands south of White Oak Creek. It is at an elevation of 82 m amsl and covers an estimated area of 5,000 m² (100-x-50 m).

The nearest water source is an unnamed drainage in the floodplain, about 150 m north of the site. The soil on the site is mapped as being Woodtell fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site is partially covered by a young hardwood forest composed of red oak, pin oak, sweetgum, maple, box elder, willow, and cottonwood. Contextual integrity of the site is judged to be fair, due to erosion along a light duty two-track road that crosses the site and two other eroded, gullied areas. All surface artifacts were observed within these eroded areas. Two hunting blinds, or deer stands, were present on the site.

All eight of the shovel tests excavated in and around site 41MX53 were determined to be within the site boundaries, based on the distribution of surface artifacts, although only one contained any cultural remains (Figure 19). Only one artifact was collected through shovel testing, for an average subsurface density of .13 artifacts per onsite shovel test. This artifact came from the first 18 cm of Shovel Test 6. Shovel testing revealed a soil profile consisting of a dark yellowish brown to brownish yellow (10YR 4/6 to 10YR 6/6) silty clay extending 50 cm beneath the surface. The only artifact collected from site 41MX53 was an unmodified quartzite tertiary flake measuring between 6.3 mm and 9.5 mm in size. Another 35 flakes, one piece of shatter, and four burned rocks were observed on the surface of the site, in the eroded areas, but not collected.

In summary, site 41MX53 is a medium-sized, low density site located on the edge of the uplands south of White Oak Creek. Since no diagnostic artifacts were recovered, the site cannot be dated. Although the surface material at the site covers an estimated 5,000 m², most of this does not appear to be in original context and the site was probably originally smaller. In light of this, and given the small amount of subsurface material, the site has been classified as a low intensity occupation. Except for the absence of temporally diagnostic artifacts, site 41MX53 is very similar to site 41MX52. Both sites have low subsurface artifact density and a surface scatter of artifacts in areas of active erosion. The single artifact recovered from a shallow depth in subsurface shovel testing, together with the few surface artifacts and the site's eroded condition, suggests a low probability for intact buried features and a limited research potential. As a result, it is recommended that site 41MX52 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX74

Site 41MX74 is a large, high density prehistoric site located on a small upland remnant in the floodplain north of White Oak Creek, about 5 km west of its present confluence with the Sulphur River. The modern channel of White Oak Creek is about 200 m to the south. The site is at an elevation of approximately 76 m amsl and covers an estimated 15,300 m² (170-x-90 m). The soil on the site is mapped as being within the Woodtell-Raino complex, 1 to 3 percent slopes (for a description of this soil complex, see Chapter 2). The site is covered by a dense hardwood forest with a moderately dense understory. Types of vegetation observed at the site include red oak, sweetgum, hickory, hackberry, pin oak, sassafras, dogwood, mulberry, greenbriar, and poison ivy. A dense mat of leaves and grass covers the site, providing only 3 to 5 percent ground surface visibility. Only limited natural disturbance was observed at the site, specifically from bioturbation (armadillo burrowing) and sheet erosion. A small area in the southwest part of the site is being affected by severe erosion. Contextual integrity of the site is judged to be good.

In all, 15 shovel tests were excavated in and around site 41MX74, 11 of which were within the site boundary as defined on the basis of surface artifacts, shovel tests, and topography (Figure 20). Fifty-six artifacts were collected through shovel testing, for an average density of 5.1 artifacts per onsite shovel test. Cultural materials are present to at least 80 cm below surface in the northern portion of the site (i.e., Shovel Tests 1 and 2). Shovel testing revealed a generalized soil profile beginning with 40 cm of a yellowish brown and brownish yellow (10YR 5/6 and 10YR 6/6) to very pale brown (10YR 7/4) silty loam. A strong brown (7.5YR 4/6 to 7.5YR 5/8) to reddish brown and yellowish red (5YR 4/4 and 5YR 5/8) silty clay was

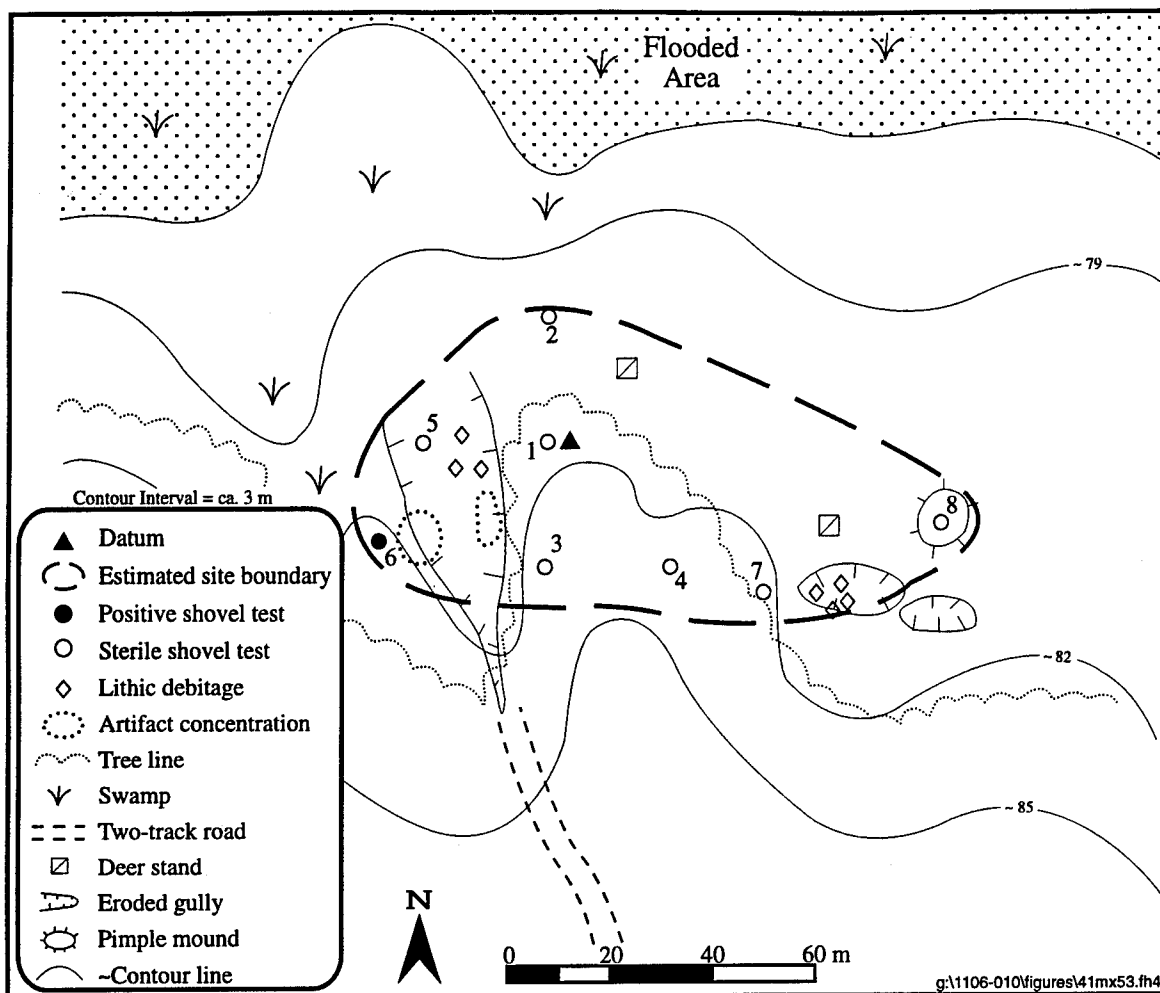


Figure 19. Pace and compass map of site 41MX53.

generally encountered at 40 cm below the surface. In some positive shovel tests, specifically those on the northern end of the site, subsoil was deeper than 80 cm. In addition to the subsurface artifacts, a few surface artifacts (nine flakes and a biface fragment) were observed within the eroded area on the southwestern part of the site. These were not collected.

The prehistoric artifact sample collected from site 41MX74 consists of one prehistoric ceramic sherd, two finished bifacial tools, an unfinished biface, a utilized flake, 49 pieces of unmodified debitage, and two unworked burned rocks, for a total of 56 artifacts. The single prehistoric ceramic is a plain body sherd with clay/grog temper. It measures 7.0 mm thick. The finished bifacial tools consist of the tip of a dart point or knife and an arrow point. The biface tip is made of Ogallala quartzite; measures 21 mm long, 15 mm wide, and 5 mm thick; and weighs .5 gram. The extant lateral blade edges are slightly convex. The tip was broken off the rest of the biface with a clean snap fracture. The other finished tool appears to be a Homan or Agee arrow point made of Ogallala quartzite, measuring 17 mm long, 14 mm wide, and 3 mm thick, and weighing .6 gram (Figure 21). This point is nearly complete, with only one barb and a small portion of the base missing. The tool has a needle-like tip below which are blade edges that are bulbously convex, giving

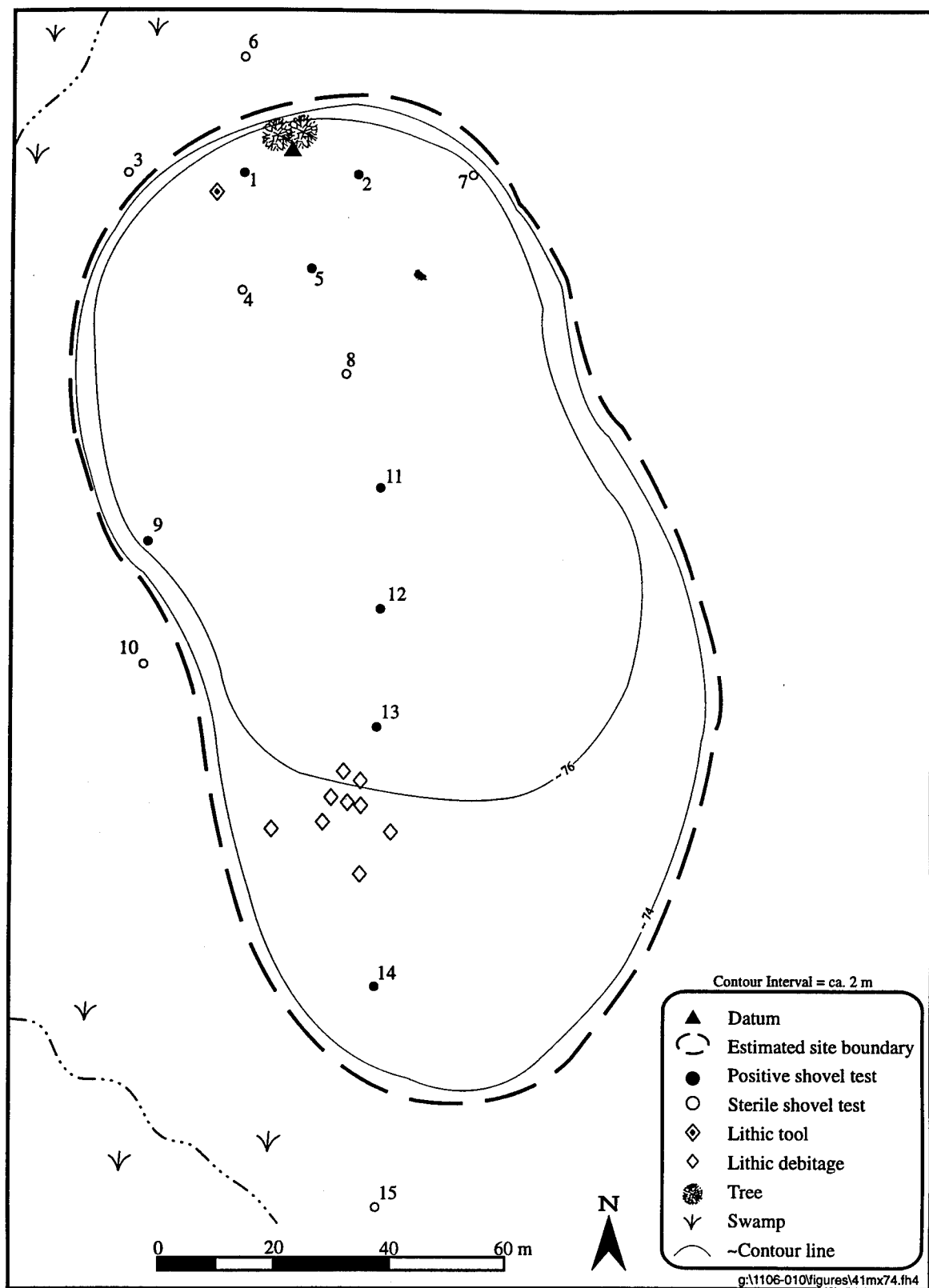


Figure 20. Pace and compass map of site 41MX74.

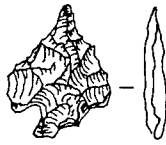


Figure 21. Arrow point recovered from site 41MX74 (Shovel Test 12, Level 2) (Scale 1:1).

it an overall fat teardrop shape. The single remaining corner notch is deep and U-shaped and is at a 45-degree angle to the base, which seems to be, judging from what remains, rounded or slightly expanding.

The unfinished biface is a distal fragment and was aborted early in the manufacturing process. It is chert, with numerous granular inclusions, the presence of which may have led to the abandonment of this unfinished biface fragment. The artifact weighs 13.6 grams and is 33 mm long, 32 mm wide, and 15 mm thick. The utilized flake is an Ogallala quartzite bifacial thinning flake which measures 17 mm long, 16 mm wide, and 4 mm thick, and weighs .9 gram. Cortex covers about one-third of the dorsal surface. A few bifacial thinning flake scars are also on the dorsal surface. The utilized edge of the flake is opposite the bulb of percussion and bears the microflaking associated with use-wear. The 49 pieces of unmodified debitage include four primary flakes, 18 secondary flakes, 14 tertiary flakes, 11 bifacial thinning flakes, and two pieces of shatter. Raw material types for the lithic debitage include chert (n=21), quartzite (n=14), Ogallala quartzite (n=10), petrified wood (n=2), silicified wood (n=1), and hematite (n=1). The debitage varies greatly in size, with two pieces less than 6.3 mm in size, 19 ranging from 6.3 to 9.5 mm, 14 from 9.5 to 12.5 mm, 11 from 12.5 to 19 mm, two from 19 to 25 mm, and one piece larger than 25 mm in size. The two pieces of burned rock were sandstone and weighed 101.3 grams.

In summary, site 41MX74 is a large, high density prehistoric site located on a small upland remnant in the floodplain north of White Oak Creek and about 5 km west of its confluence with the Sulphur River. On the basis of the Homan/Agee arrow point and a plain ceramic sherd, the occupation at this site dates to the Formative or Early Caddoan period. On the basis of its size and artifact density, the site has been classified as a high intensity occupation. Cultural materials at the site were found up to 80 cm below surface in two shovel tests. This site, possessing good contextual integrity and possibly having thick deposits of cultural material, is believed to have good research potential. Therefore, it is recommended that site 41MX74 be considered to be of unknown potential for inclusion in the NRHP. It is further recommended that the site be protected pending test excavations designed to determine its NRHP status.

Site 41MX75

Site 41MX75 is a small, low density prehistoric site located on the southern edge of a terrace remnant in the Sulphur River floodplain. It is located at an elevation of 79 m amsl and occupies an area of 1,200 m² (90-x-50 m). The nearest source of water is Reddon Lake, which is 150 m south of the site. Reddon Lake appears to be a former creek or river channel which may at one time have been part of the main channel of the Sulphur River, which flowed south by way of Molly Clark Slough, Twin Lakes, and Reddon Lake, to join with White Oak Creek about 4 km west of the present confluence (see Figure 1). The site is mapped as being in the Woodtell-Raino complex, 1 to 3 percent slopes (for a description of this complex, see Chapter 2). Part of the site is in an open field of mixed weeds and grasses, while the remainder is covered by heavy underbrush of greenbrier and small thickets of locust, elm, persimmon, and ash. Besides bioturbation,

disturbance to the area includes mechanical clearing of vegetation and construction of an old dirt two-track road 15 m east of the site boundary. The presence of charcoal in the upper 5 cm of Shovel Test 4, and mixed soils in the profile of the sterile Shovel Test 6, may be the result of these mechanical disturbances. Contextual integrity is thus judged to be fair.

Eight shovel tests were excavated at site 41MX75, four of which are within the site boundary (Figure 22). Five artifacts were recovered at the site, for an average subsurface density of 1.3 artifacts per onsite shovel test. A generalized soil profile for the site consists of a brown (10YR 4/3 to 10YR 5/3) silt loam about 20 cm thick, underlain by a yellowish brown to light yellowish brown (10YR 5/4 to 10YR 6/4) silt loam E horizon up to 75 cm deep. Only five pieces of unmodified debitage were recovered from site 41MX75, consisting of four secondary flakes and one tertiary flake. Chert is the main raw material type (n=3), with quartzite and Ogallala quartzite also included in the sample. The tertiary chert flake was burned. Three artifacts were between 6.3 to 9.5 mm in size and two were 9.5 to 12.5 mm in size.

In summary, site 41MX75 is a small, low density site of an unknown prehistoric period. Based on its size and density, it has been classified as a low intensity occupation. The site is believed to have fair contextual integrity. Given the limited nature of the occupation suggested for this site, it is possible that it represents a single component. If this were to proven to be the case, it could have a high research potential. Consequently, it is recommended that site 41MX75 be considered of unknown eligibility for inclusion in the NRHP. It is further recommended that the site be protected pending test excavations designed to determine its NRHP status.

Site 41MX76

Site 41MX76 is a small, low density prehistoric site located on the eastern edge of a remnant upland ridge which extends into the floodplain north of White Oak Creek. It is at an elevation of 78 m amsl and encompasses an area of less than 2,250 m² (100-x-25 m). The nearest natural water source to site 41MX76 is a small tributary of White Oak Creek approximately 100 m to the north. The site is mapped as being at the boundary between Nahatche loam-silty clay loam and Texark clay, both of which are frequently flooded (for descriptions of these soils, see Chapter 2). The site is covered by a moderate to dense hardwood forest composed of red oak, pin oak, sweetgum, hickory, box elder, and dogwood, with a moderately dense understory of saplings, mulberry, and greenbriar. A thick mat of leaves and mixed grass allowed only limited ground surface visibility, estimated at 1 to 3 percent. Disturbance was limited to minor amounts of bioturbation, armadillo burrows being especially notable, and two logging trails which pass near the eastern edge of the site. Contextual integrity is believed to be good.

Eleven shovel tests were excavated at the site, seven of which were within the site boundary (Figure 23). Nine artifacts were recovered from the site, for an average density of 1.3 artifacts per onsite shovel test. Cultural remains were found down to 80 cm below surface. The soil profile revealed through shovel testing consists of a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/6) sandy loam, 20 to 40 cm thick, underlain by a yellowish brown to brownish yellow (10YR 5/6 to 10YR 6/8) sandy loam to a depth of 40 to 80 cm below surface. A clay subsoil was encountered in only three shovel tests, one of which, Shovel Test 1, was within the site boundary. The entire sample of artifacts collected at site 41MX76 consisted of unmodified lithic debitage. This sample included of three secondary flakes, three tertiary flakes, and three bifacial thinning flakes. These were made of a wide variety of material types, including quartzite (n=3), Ogallala quartzite (n=3), chert (n=1), novaculite (n=1), and silicified wood (n=1). Most of the artifacts (n=5) were from 6.3 to 9.5 mm in size, with one less than 6.3 mm, two between 9.5 to 12.5 mm, and one between 12.5 and 19 mm in size.

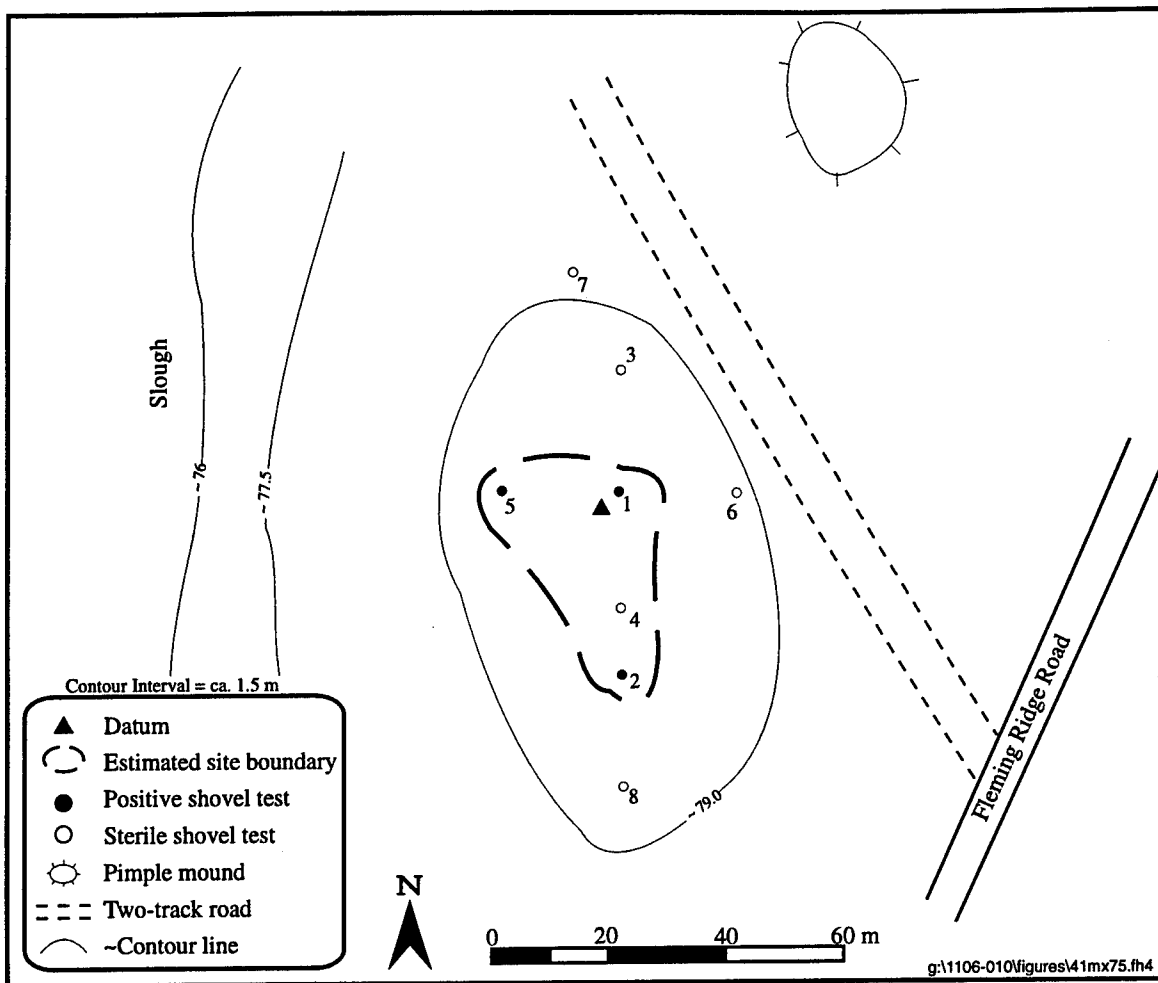


Figure 22. Pace and compass map of site 41MX75.

In summary, site 41MX76 is a small, low density lithic scatter of an unknown prehistoric period. In view of the small quantity of material recovered and the small size of the site, it has been classified as a low intensity occupation. Despite the limited quantity of artifacts identified there, the site has good contextual integrity and may have a good research potential. Consequently, it is recommended that site 41MX75 be considered of unknown eligibility for inclusion in the NRHP. It is further recommended that the site be protected pending test excavations designed to determine its NRHP status.

Site 41MX77

Site 41MX77 is a medium-sized, low density prehistoric site located on a remnant knoll just south of Twin Lakes. The site is at an elevation of 81 m amsl and covers approximately 2,500 m² (50-x-50 m). The nearest water source is Twin Lakes, which is about 100 m north of the site. Twin Lakes appears to be a former creek or river channel which may at one time have been part of the main channel of the Sulphur River, which flowed south by way of Molly Clark Slough, Twin Lakes, and Reddon Lake, to join with White

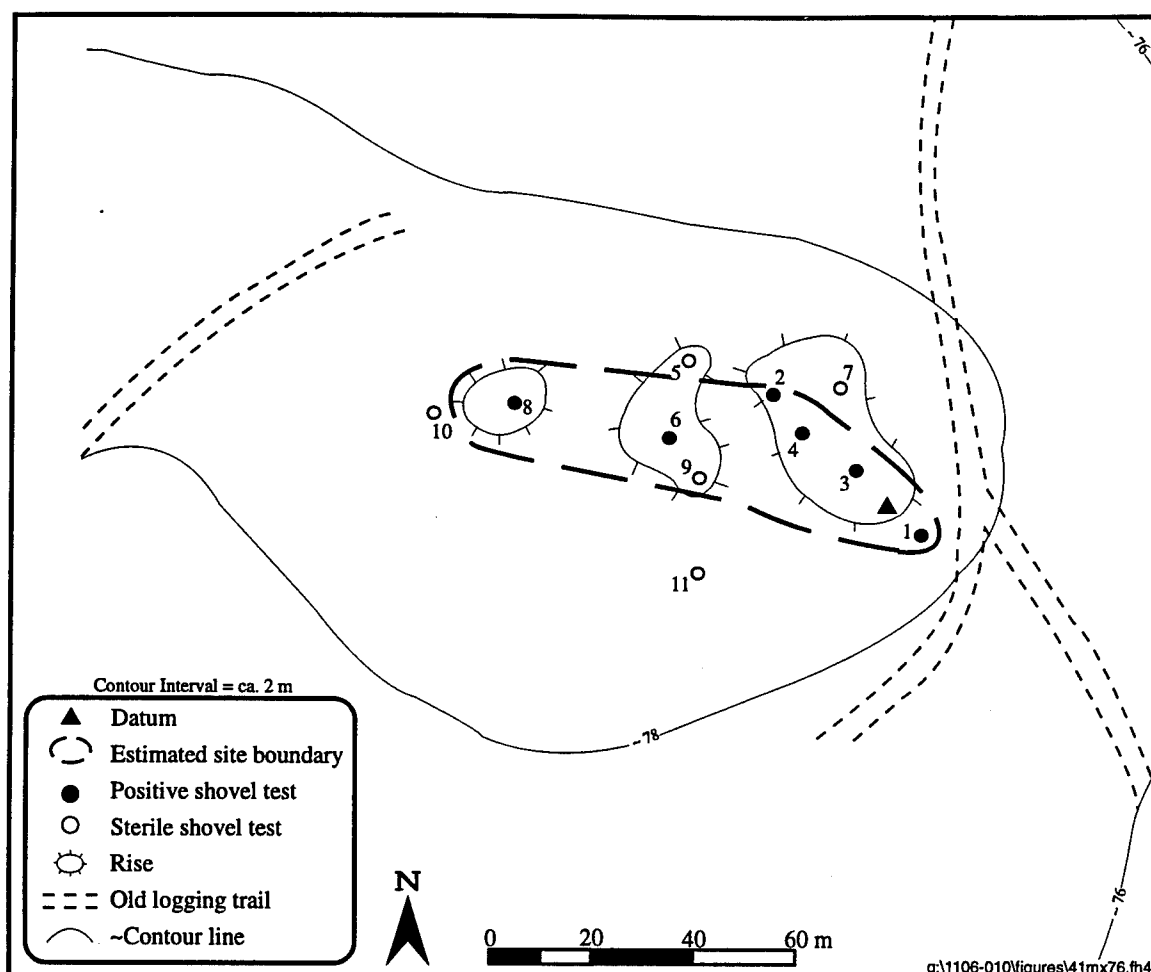


Figure 23. Pace and compass map of site 41MX76.

Oak Creek about 4 km west of the present confluence (see Figure 1). The soil in the site area is mapped as being Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The knoll is heavily wooded with red and white oak, hickory, dogwood, box elder, elm, and redwood. The sparse underbrush consisted of poison oak, greenbriar, and blackberry, along with mixed grasses including Johnson grass and ragweed. The only disturbance observed to the site was bioturbation.

Nine shovel tests were excavated in the vicinity of site 41MX77, six of which were within the site boundary (Figure 24). Fifteen artifacts were recovered at the site, for an average subsurface density of 2.5 artifacts per onsite shovel test. Artifacts were recovered up to 40 cm below the surface. The general soil profile observed during shovel testing consisted of a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/4) silt loam to a depth of 60 cm. The clay subsoil was not penetrated in any of the tests.

As noted above, 15 artifacts were collected from site 41MX77. They consisted of 10 prehistoric ceramic sherds and five pieces of unmodified lithic debitage. The ceramic sample consisted of three very small fragments (i.e., "sherdlets") and seven body sherds. All were tempered with clay/grog. For the seven

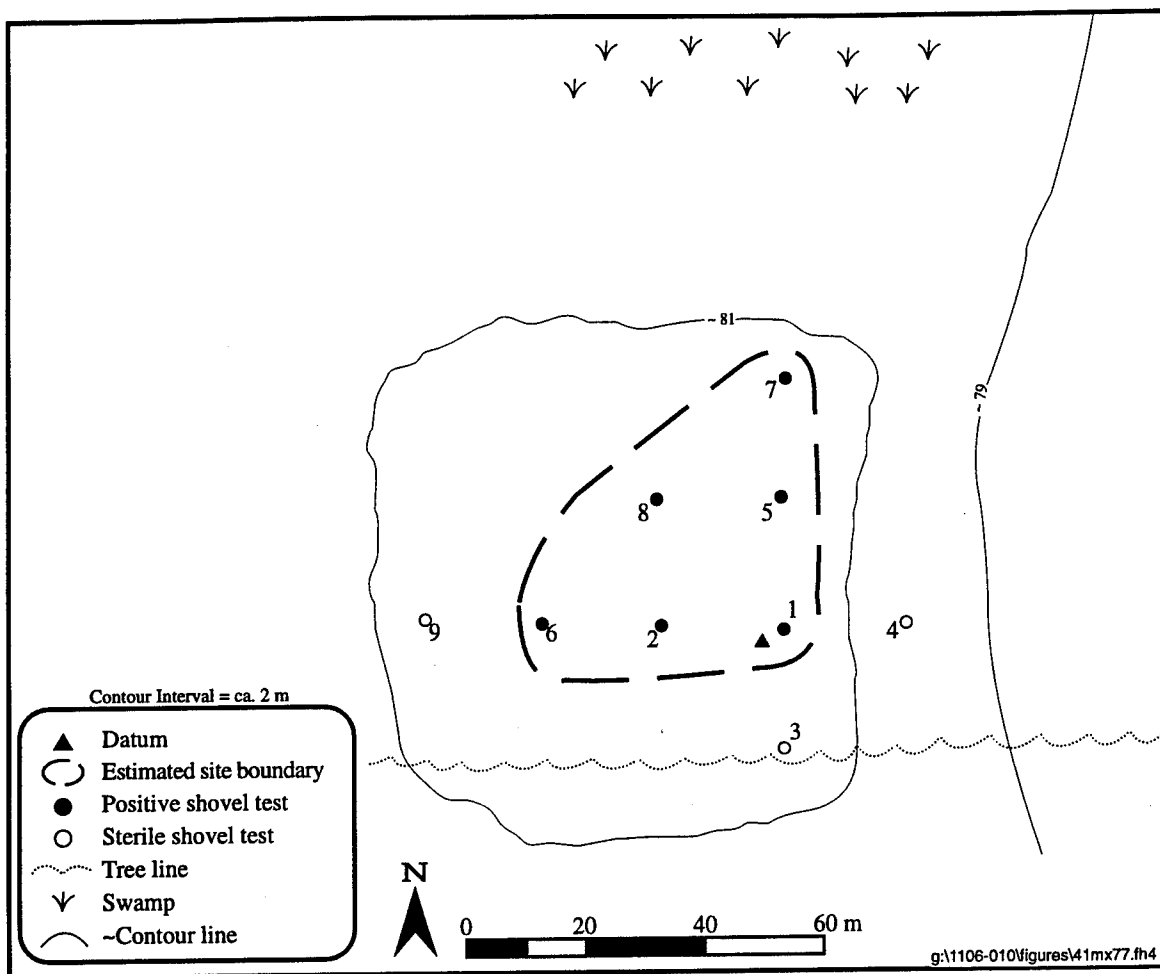


Figure 24. Pace and compass map of site 41MX77.

sherds for which thickness could be measured, it varied from 4.0 to 7.0 mm, with a mean of $5.4 \pm .9$ mm and a mode of 5.0 mm. Most of the sherds were undecorated, although one small sherd may have been brushed. The lithic debitage consisted of four tertiary flakes and a single bifacial thinning flake. Raw material types were quartzite (n=2), Ogallala quartzite (n=2), and chert (n=1). The flakes were small, with three less than 6.3 mm in size and two between 6.3 to 9.5 mm in size. One piece of animal bone was recovered from site 41MX77. This was a podial fragment attributable to a medium to large mammal, with light weathering and angular fracturing. It was recovered within 10 cm of the surface from the otherwise sterile Shovel Test 7.

In summary, site 41MX77 is a small, low density prehistoric site. The presence of ceramics on the site dates the occupation to either the Early Ceramic or Caddoan period, while a possible brushed sherd suggests a Middle to Late Caddoan date. On the basis of its size and subsurface artifact density, the site is classified as a low intensity occupation. The artifact sample consisted of two artifact classes, ceramics and lithic debitage. All of the ceramic sherds (n=10) were recovered from two shovel tests, with nine of the 10 coming from Shovel Test 2 alone and possibly representing two vessels. Despite its small size and low artifact density, the site appears to have excellent contextual integrity and, given the possibility for faunal preservation, it is felt that the site may have good research potential. Consequently, it is recommended that

site 41MX77 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations to determine its NRHP status.

Site 41MX78

Site 41MX78 is a small, low density prehistoric site located on several natural rises along the northern edge of a remnant upland ridge which extends into the floodplain north of White Oak Creek. It is at an elevation of 79 m amsl and covers approximately 600 m² (65-x-10 m). An intermittent drainage 400 m east of the site appears to be an abandoned channel of the Sulphur River. The site is mapped as being at the edge of Nahatche loam-silty clay loam, frequently flooded, and Texark clay, frequently flooded (for descriptions of these soils, see Chapter 2). The site is covered by a moderate to dense hardwood forest composed of red oak, pin oak, sweetgum, hickory, hackberry, box elder, and dogwood with a thin understory. A dense leaf and grass mat across the site prevented good ground surface visibility. Disturbance was minimal at the site, being limited to a small amount of erosion. The site is considered to have good contextual integrity.

Ten shovel tests were excavated at the site, three of which are within the site boundary as defined by the shovel testing, surface artifacts, and topography (Figure 25). However, only two of these units actually contained cultural materials. Three artifacts were recovered through subsurface shovel testing, for an average of 1.0 artifact per onsite shovel test. In addition, two flakes were found in an eroded area in the northwestern portion of the site. These artifacts were not collected. A dark yellowish brown to light brownish gray (10YR 4/6 to 10YR 6/2) silty loam up to 60 cm in depth was observed in the profiles of the shovel tests located on the natural rises. Artifacts were recovered from these rises as deep as 40 cm below surface. The sterile shovel tests revealed a brown to reddish brown (10YR 5/3 to 5YR 4/4) silty clay or clay 40 cm deep. Only three prehistoric artifacts, two pieces of unmodified lithic debitage and a core, were recovered from site 41MX78. The debitage consists of two unmodified tertiary flakes, one of Ogallala quartzite and less than 6.3 mm in size, and the other of quartzite between 9.5 and 12.5 mm in size. The other lithic artifact is a fragmentary portion of a multidirectional pebble core. It is made of chert and measures 26 mm long, 29 mm wide, and 13 mm thick, with a weight of 8.3 grams.

In summary, site 41MX78 is a small, low density site of an unknown prehistoric period. Based on the limited quantity and variety of artifacts recovered, as well as its size and density, the site has been classified as a low intensity occupation. Despite the site's apparent low artifact density, it retains good contextual integrity and may have good research potential. Therefore, it is recommended that site 41MX78 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX79

Site 41MX79 is a very large, low density prehistoric site located on the western half of a flat terrace in the Sulphur River bottoms. The site is at an elevation of 80 m amsl and covers approximately 40,000 m² (400-x-100 m). It is mapped as being within the Woodtell-Raino complex, 1 to 3 percent slopes (for a description of this complex, see Chapter 2). The nearest source of water is Twin Lakes, about 200 m west of the site. As noted previously, Twin Lakes may have formerly been part of the main channel of the Sulphur River, which would have flowed south by way of Molly Clark Slough, Twin Lakes, and Reddon Lake, to join with White Oak Creek about 4 km west of the present confluence (see Figure 1). The terrace on which the site is located is an open field covered with high mixed grasses, greenbriar, grapevine, and occasional thickets of locust, red oak, and ash. Besides heavy bioturbation, the only impact to the area was a two-track road which crossed the extreme northern portion of the site. Contextual integrity is judged to be good.

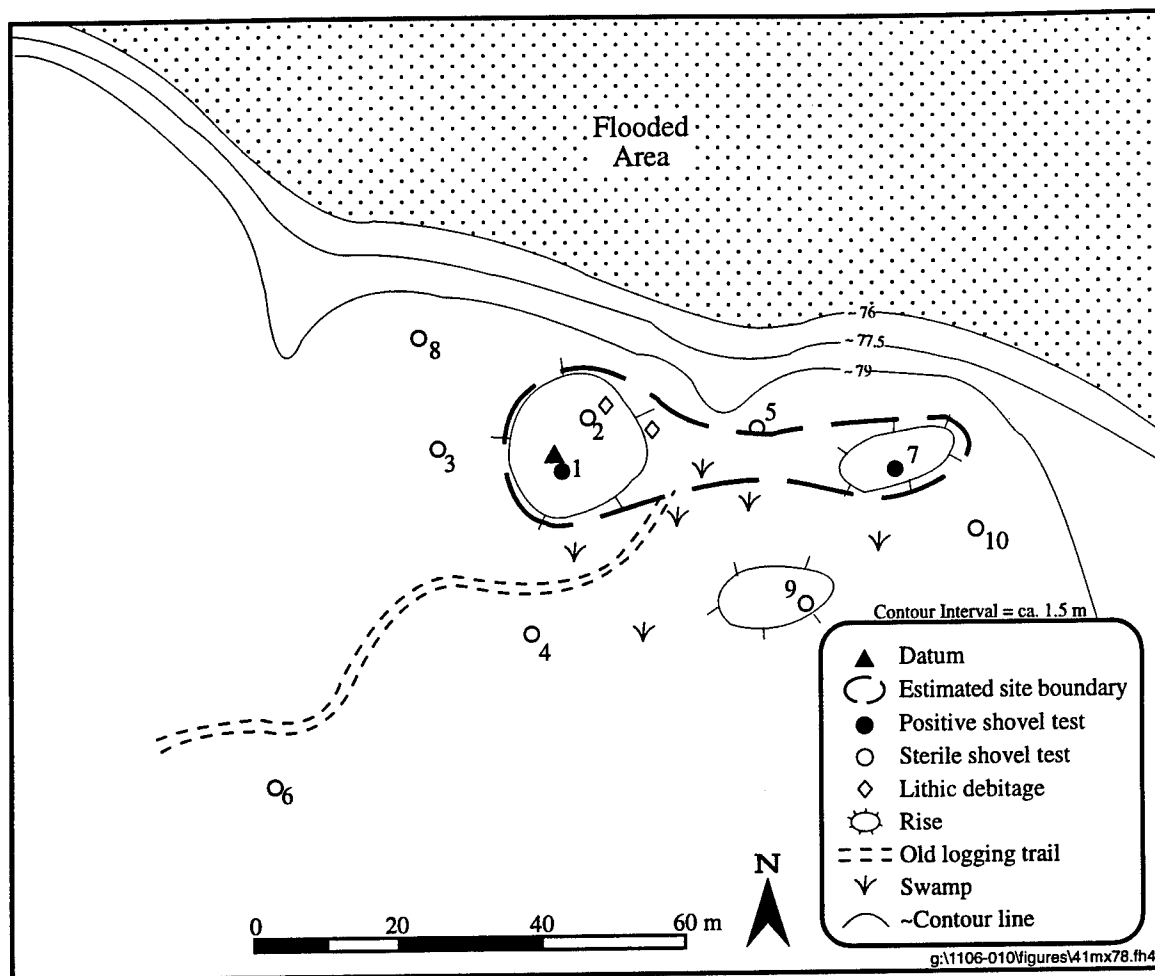


Figure 25. Pace and compass map of site 41MX78.

Fifty shovel tests were excavated in and around site 41MX79. Thirty-eight of these were within the site boundary (Figure 26). However, only 20 of these onsite shovel tests actually contained cultural material. In all, 58 artifacts were recovered from these shovel tests, for an average density of 1.5 artifacts per onsite shovel test. A large number of these artifacts ($n=21$; 36 percent) came from just three adjacent units: Shovel Tests 6, 9, and 12 (giving this area a density of 7.0 artifacts per shovel test). All of the ceramics from the site ($n=10$) came from Shovel Tests 6 and 9. Two general soil profiles were noted during shovel testing at the site. In most of the shovel tests ($n=30$), a brown to brownish yellow (10YR 4/3 to 10YR 6/8) silty loam was observed extending as deep as 80 cm below the surface. A clay subsoil was not reached in these tests. In the remaining shovel tests ($n=20$), a dark grayish brown to yellowish brown (10YR 4/2 to 10YR 5/4) silty loam, generally 40 cm thick, was underlain by a yellowish brown to brownish yellow (10YR 5/6 to 10YR 6/6) silty clay. Artifacts were recovered from the upper 40 cm of the silty loam and, in a few instances, from a depth of 80 cm. No artifacts were collected from the clay subsoil.

As noted above, 58 artifacts were collected from site 41MX79, consisting of 10 prehistoric ceramic sherds, one piece of baked clay, two unfinished bifaces, one utilized flake, and 44 pieces of unmodified lithic debitage. Of the 10 ceramic sherds, one was a "sherdlet," six were plain body sherds, one was a plain rim sherd, and two were incised body sherds. All of them were tempered with clay/grog. Sherd thicknesses were not normally distributed, but were 3.0 mm ($n=1$), 4.0 mm ($n=2$), 5.0 mm ($n=1$), 6.0 mm ($n=2$), 7.0

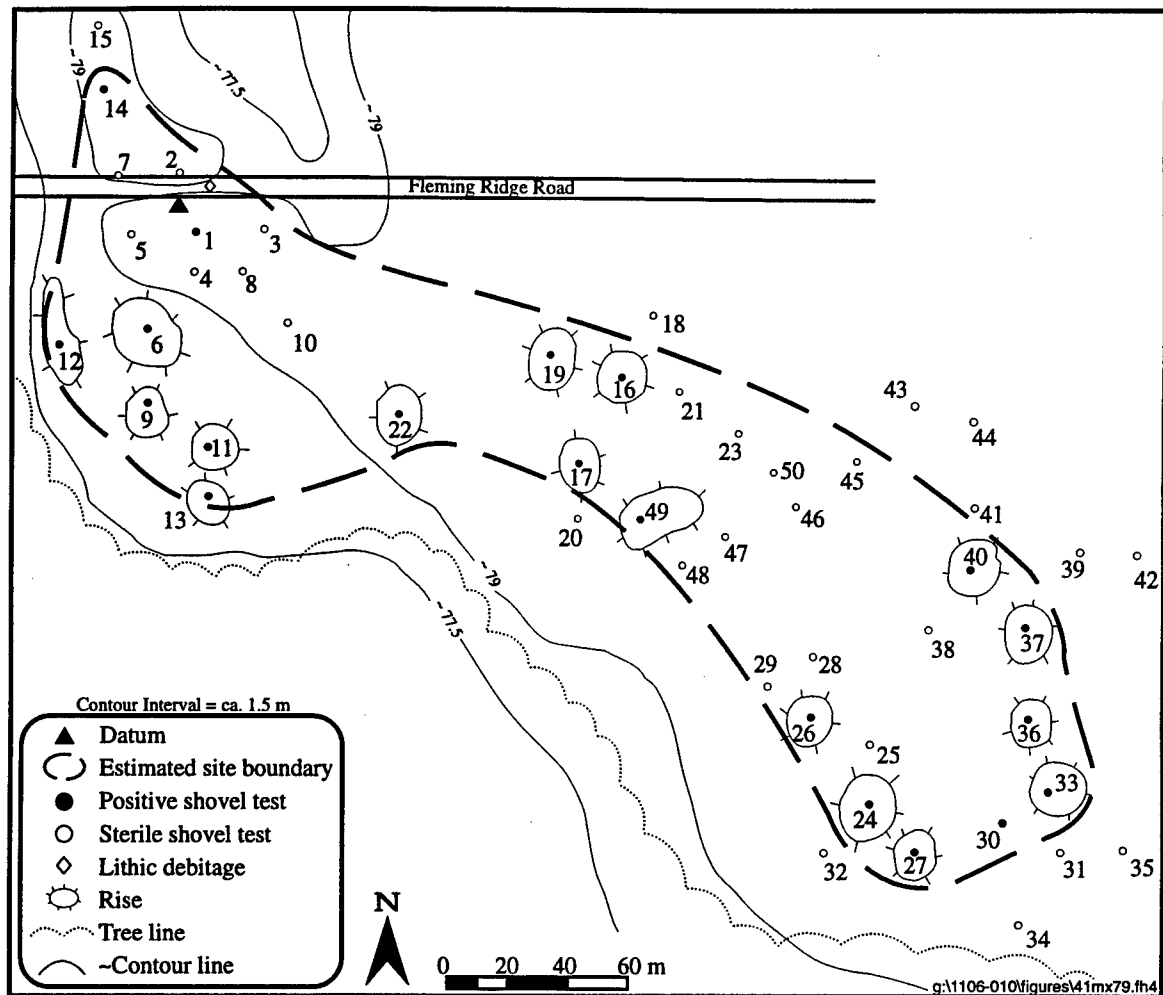


Figure 26. Pace and compass map of site 41MX79.

mm (n=2), and 9.0 mm (n=2). The mean thickness was 6.0 ± 1.9 mm. Two of these sherds are thick enough to be Williams Plain. The rim sherd is thinned with a rounded lip and is very thin (3.0 mm). One of the incised body sherds has only a single straight line segment and cannot be typed. The other has a series of parallel diagonal straight and curved lines bounded by a straight line and has been typed as Crockett Curvilinear Incised.

Both unfinished bifaces had been aborted early in the manufacturing process. One unfinished biface is complete and made of chert. It measures 35 mm long, 19 mm wide, and 6 mm thick, and weighs 4.3 grams. It is difficult to say if the maker had a dart or arrow in mind when this biface was produced, but the size alone suggests a dart point. Flake scars with hinge terminations have piled up on one surface of the distal end around a coarse grain, discolored inclusion, leading to the cessation of further bifacial reduction. The other unfinished biface had also been aborted early in the manufacturing process. This chert artifact is fragmentary; measures 20 mm long, 26 mm wide, and 10 mm thick; and weighs 3.8 grams. At first it appears unifacial, but the ventral surface bears a half-dozen flake scars all originating from the lateral edges. The dorsal surface is arched, resulting in a keel-shaped cross section. Cortex remains on what would be considered the tip of this biface fragment. Microflake scars, indicative of use-wear, appear on one of the

lateral edges. The artifact thus seems to have been used. One utilized flake, ranging between 6.3 and 9.5 mm in size, was recovered. This chert bifacial thinning flake bears microflake scars indicative of expedient use. The lithic debitage includes four primary flakes, 14 secondary flakes, 17 tertiary flakes, eight bifacial thinning flakes, and one piece of shatter. The size range of most of the lithic debitage is small to medium, with four flakes less than 6.3 mm in size, 18 ranging from 6.3 to 9.5 mm, 15 from 9.5 to 12.5 mm, six from 12.5 to 19 mm, and one piece larger than 25 mm in size. Raw materials include chert (n=18), quartzite (n=11), Ogallala quartzite (n=10), silicified wood (n=3), novaculite (n=1), and siltstone (n=1). The single piece of baked clay recovered was unimpressed and weighed .6 gram.

In summary, site 41MX79 is a very large, low density prehistoric site. The possible presence of Williams Plain and Crockett Curvilinear Incised indicate an occupation during the Formative or Early Caddoan period, although the size of the site and localized distribution of ceramics suggests other components are present as well. Despite the low artifact density, the size of the site and the large sample of material recovered has resulted in the site being classified as a high intensity occupation. The pattern in the distribution of artifacts within the shovel tests suggests that a residential area may be present in the far western portion of the site around Shovel Tests 6, 9, 11, 12, and 13. The 23 artifacts recovered from these five shovel tests produce a moderate (average=4.6) subsurface artifact density for this area. The remaining site area may be an extended scatter of this residential occupation, or separate components entirely. In view of this possibility, as well as the overall good contextual integrity, the site is believed to possess good research potential. It is therefore recommended that site 41MX79 be considered of unknown eligibility for inclusion in the NRHP and that it be protected from any disturbance until test excavations can be undertaken to determine its NRHP status.

Site 41MX80

Site 41MX80 is a small, medium density prehistoric site located on top of a remnant upland ridge which extends into the floodplain north of White Oak Creek. An intermittent drainage approximately 750 m east of the site appears to be a former channel of the Sulphur River. The site is at an approximate elevation of 79 m amsl and covers approximately 250 m² (25-x-10 m). The site is mapped as being on Woodtell fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site is covered by a hardwood forest composed of red oak, sweetgum, hickory, elm, pin oak, dogwood, honey locust, and sassafras, with a very dense understory of greenbriar, poison ivy, poison oak, mulberry, and other saplings. Only limited natural disturbance was noted at the site, specifically bioturbation. The site is considered to have good contextual integrity.

In all, eight shovel tests were excavated at site 41MX80, with only two of these units within the site boundary (Figure 27). Six artifacts were recovered through shovel testing at the site, for an average of 3.0 artifacts per onsite shovel test. Cultural materials were recovered from two natural rises at maximum depths of 40 and 80 cm below surface. The soil profile revealed through shovel testing consisted of a dark brown to yellowish brown (10YR 4/3 to 10YR 5/6) sandy loam generally extending to 40 cm beneath the surface, although it continued to a depth of 80 cm in one artifact-bearing shovel test. This sandy loam was underlain by a yellowish red (5YR 4/6) to strong brown (7.5YR 5/6) sandy clay. All artifacts were found in the sandy loam. Only six artifacts, all unmodified debitage, were recovered from site 41MX80: one Ogallala quartzite primary flake; two secondary flakes, one made of chert and the other quartzite; two tertiary flakes, one of chert and one quartzite; and one piece of quartzite angular shatter. The lithic debitage tends to be small, with four from 6.3 to 9.5 mm in size. The quartzite tertiary flake is less than 6.3 mm in size, while the angular shatter is between 12.5 and 19 mm in size.

In summary, site 41MX80 is a small, moderate density site of an unknown prehistoric period, located on a ridge above the floodplain of White Oak Creek. Despite having a moderate subsurface artifact density, the

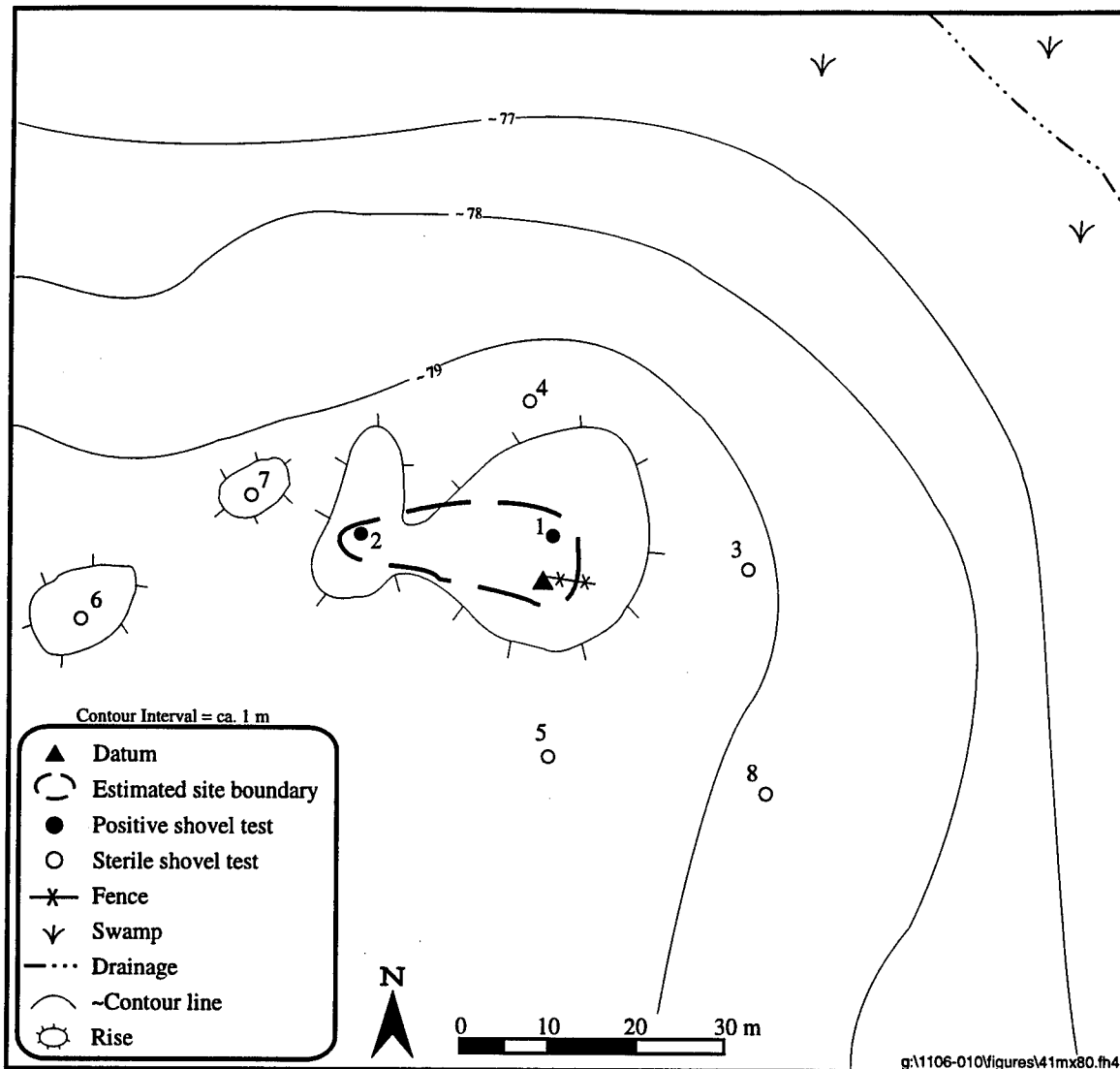


Figure 27. Pace and compass map of site 41MX80.

site is classified as a low intensity occupation, based on its small size and on the limited number of artifacts recovered. Despite this, the site has good contextual integrity and may have a good research potential. Consequently, it is recommended that site 41MX80 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX81

Site 41MX81 is a very large, low density prehistoric site located on a terrace overlooking the White Oak Creek floodplain. It is at an elevation of 81 m amsl and covers an estimated area of approximately 22,500 m² (225-x-100 m). The nearest water source is an old channel of White Oak Creek 150 m west of the site. The soil in the area is mapped as Freestone fine sandy loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded with red, white, and pin oak; maple; hickory; ash; and

wildcherry. A thin undergrowth of huckleberry, sumac, thistle, ragweed, poison oak, greenbriar, and mixed grasses is present. The site is bounded by fences on the north and south. Besides the possible impact from the fences, the only other disturbance noted was a small degree of bioturbation. Contextual integrity of the site is assessed to be good.

Twelve shovel tests were excavated at the site, all within the site boundary (Figure 28). Nine artifacts were recovered through subsurface shovel testing, for an average density of .8 artifacts per onsite shovel test. Although half (n=4) of these artifacts came from the upper 20 cm of the shovel tests, some were found down to 60 cm below surface. A generic soil profile for the site begins with a brown to dark yellowish brown (10YR 4/3 to 10YR 4/4) sandy loam about 20 cm thick, underlain by a yellowish brown to light yellowish brown (10YR 5/4 to 10YR 6/4) sandy loam extending to 60 cm below surface. A yellowish brown to brownish yellow (10YR 5/6 to 10YR 6/6) silty clay was observed in Shovel Tests 7, 8, and 11 at a depth of 40 cm below the surface. It was observed to a maximum depth of 70 cm beneath the surface. All artifacts collected from the site are unmodified lithic debitage. One artifact, an unmodified Ogallala quartzite secondary flake measuring between 9.5 and 12.5 mm, was collected from the surface. Along with this flake, there were nine artifacts recovered from subsurface shovel testing at site 41MX81. They consist of one primary flake, three secondary flakes, four tertiary flakes, and one piece of shatter. Ogallala quartzite was the main raw material type (n=6), with lesser amounts of quartzite (n=2) and chert (n=1). The artifacts were generally small with four measuring less than 6.4 mm in size, four ranging from 6.3 to 9.5 mm, and one from 9.5 to 12.5 mm in size.

In summary, site 41MX81 is a very large, low density site of an unknown prehistoric period, located on a terrace overlooking the White Oak Creek floodplain. Despite the large size of the site, the positive shovel tests are very spread out and only one contains more than a single lithic artifact. This pattern suggests a series of several small components on the same landform. For this reason, as well as the overall low artifact density and limited sample, the site has been classified as a low intensity occupation. Despite the apparent low artifact density and limited inventory, the site shows good contextual integrity and may have a good research potential. It is therefore recommended that site 41MX81 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX82

Site 41MX82 is a small, low density prehistoric site located on a high finger ridge which extends south-eastward into the floodplain north of White Oak Creek. The site is at an elevation of 82 m amsl and occupies an estimated area of 1,079 m² (83-x-13 m). About 200 m east of the site is an intermittent drainage which appears to be a former channel of the Sulphur River. The site is mapped as being on Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is covered by a moderately dense hardwood forest with a moderately dense understory. The site appears to have been heavily impacted by a bulldozed logging trail, now a two-track road, passing through the densest part of the site. Severe deflation and sheet erosion has also affected the site. Contextual integrity of the site is judged to be poor.

Nine shovel tests were excavated at site 41MX82, six of which are within the site boundary (Figure 29). However, only two of these units contained any cultural material. Five artifacts were collected through shovel testing, for an average density of .8 artifacts per onsite shovel test. In addition, a considerable number of artifacts were observed on the surface. Seven of these surface artifacts were collected. Shovel testing revealed a soil profile consisting of 10 to 20 cm of a brown to light yellowish brown (10YR 5/3 to 10YR 6/4) sandy loam directly overlying a yellowish red to strong brown (5YR 5/6 to 7.5YR 4/6) sandy clay loam.

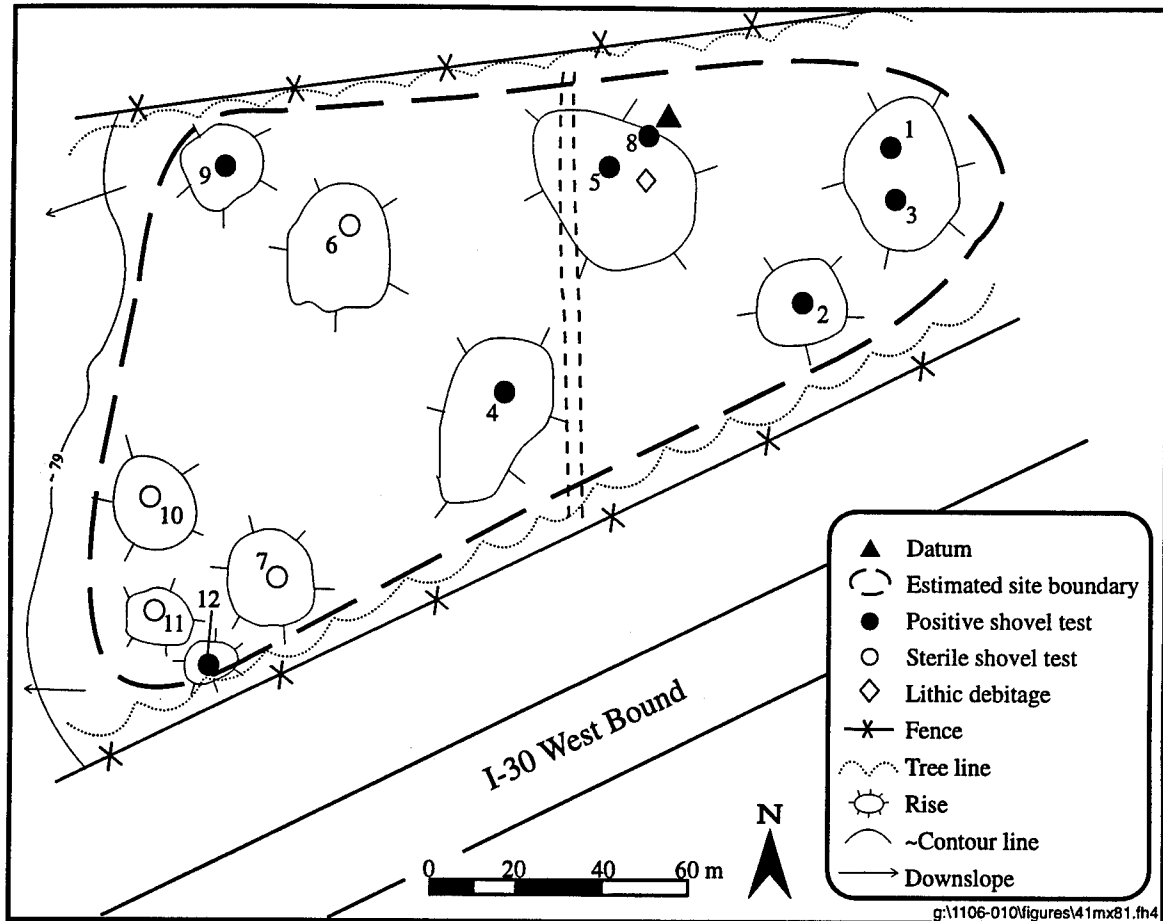


Figure 28. Pace and compass map of site 41MX81.

Twelve artifacts were collected from site 41MX82, five through subsurface shovel testing and seven through surface collection. The artifacts recovered from shovel testing consist of a utilized flake and four pieces of unmodified debitage. The utilized flake is a chert bifacial thinning flake measuring 14 mm long, 18 mm wide, and 4 mm thick, with a weight of .7 gram. The flake has basically three edges, one of which bears the striking platform. Microflaking indicative of heavy use appears on the longer of the other two edges. The unmodified debitage includes two secondary flakes, one tertiary flake, and one bifacial thinning flake. These artifacts were made of Ogallala quartzite (n=2), chert (n=1), and quartzite (n=1).

The seven surface collected artifacts consist of a single finished bifacial tool, an unfinished biface, three utilized flakes, and two pieces of unmodified debitage. Only the proximal half of the finished bifacial tool was recovered. It appears to be a fragment of an Edgewood dart point, measuring 25 mm long, 20 mm wide, and 8 mm thick, with a weight of 4.2 grams (Figure 30). It is made of Ogallala quartzite. The point fragment is believed to have been broken during manufacture or resharpening as one lateral edge is completely retouched, while the other bears large reduction flake scars. The remains of both lateral edges are each about 7 mm in length. The fragmentary biface has prominent shoulders and concave stem edges which expand as wide as the shoulders. The base is concave. The unfinished biface is fragmentary and has a triangular shape. It was aborted late in the manufacturing process. It is made of chert; measures 23 mm

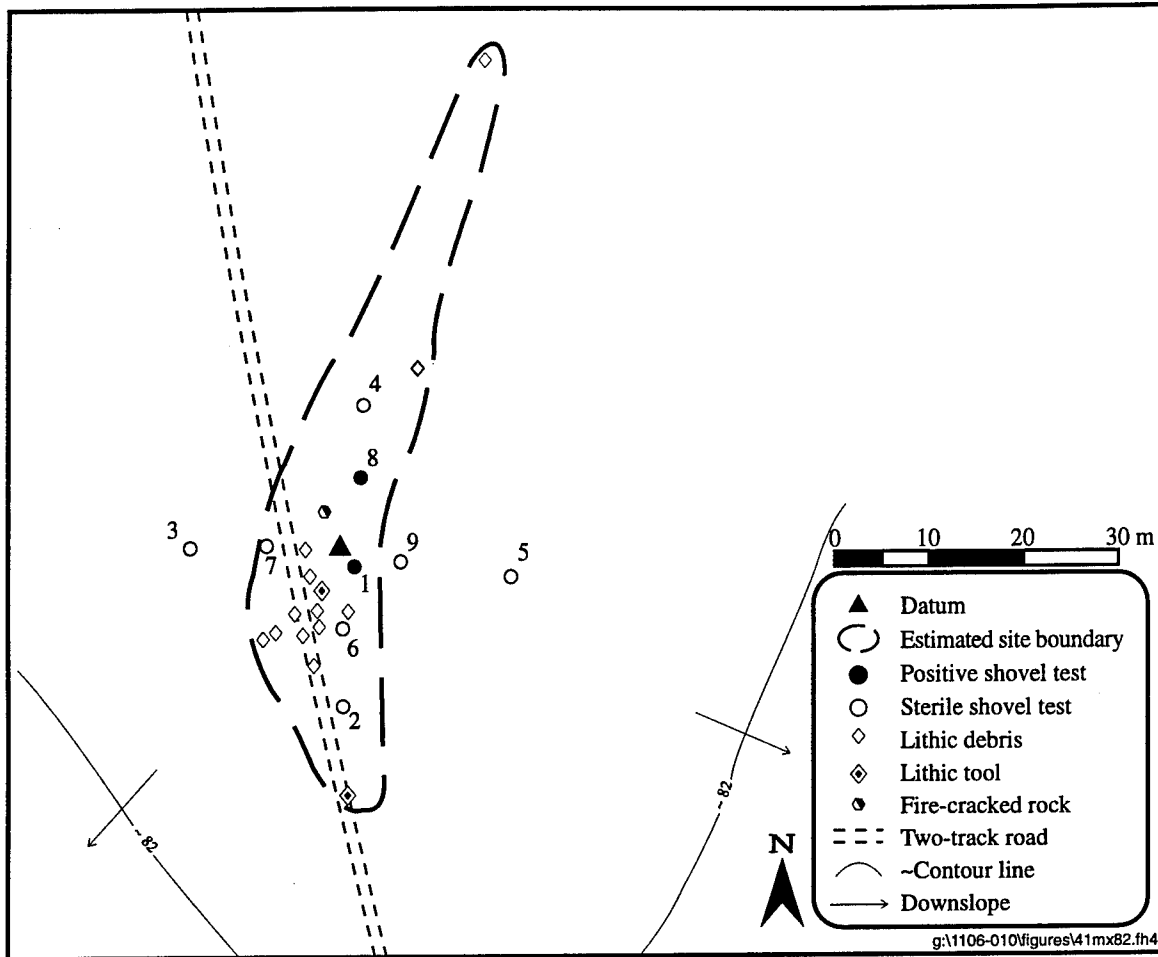


Figure 29. Pace and compass map of site 41MX82.

long, 14 mm wide, and 5 mm thick; and weighs 1.2 grams. It is unclear if the maker had a projectile point in mind or if the artifact originated as a flake and was bifacially reduced for expedient use. Nonetheless, it has the appearance of being the distal end, or "tip," of a point with small pressure flake scars evident on both surfaces. Microflaking indicative of heavy use is present along both of these edges on what can be termed the dorsal surface. The rough surface of an inclusion has been exposed on this dorsal face below these working edges and afforded a convenient grip while using the tip. Microflaking also appears on this rough surface along the proximal edge of this triangular piece, that is, the edge opposite the "tip." These use wear scars are on the ventral surface. The grip for use of this edge would have been the "tip" itself. This artifact appears to have been well used. Two of the three surface collected utilized flakes are made of chert, while the other is Ogallala quartzite. One of the chert utilized flakes measures 22 mm long, 14 mm wide, and 4 mm thick, and has a weight of 1.1 grams. It was fashioned from a secondary flake; cortex is present on two opposite ends of this roughly rectangular artifact and covers the intact platform above the bulb of percussion. Microflaking is present on the convex side of the two edges. The other chert utilized flake measures 20 mm long, 21 mm wide, and 4 mm thick, and weighs 1.9 grams. It was fashioned from a tertiary flake. Of the five edges on this artifact, microflaking is present on three. The Ogallala quartzite utilized flake was fashioned from a large tertiary flake; measures 26 mm long, 27 mm wide, and 6 mm thick; and weighs 4.2

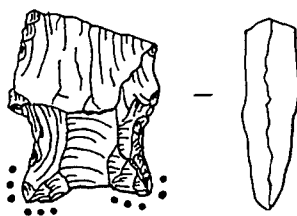


Figure 30. Fragmentary Edgewood dart point recovered from site 41MX82 (surface) (Scale 1:1).

grams. One of the three distinct edges has been utilized. The two pieces of unmodified debitage consist of a chert tertiary flake, measuring between 9.5 and 12.5 mm in size, and an Ogallala quartzite bifacial thinning flake, measuring between 12.5 and 19 mm in size.

In summary, site 41MX82 is a small, low density prehistoric site located on the edge of the uplands above the White Oak Creek floodplain. Based on the presence of a broken Edgewood dart point, it is dated to the Late Archaic period. Based on its small size and low artifact density, the site has been classified as a low intensity occupation. The presence of four artifact classes (finished bifacial tool, unfinished biface, utilized flakes, and unmodified lithic debitage) suggests a residential function. Despite this, the site's low subsurface artifact density and poor contextual integrity suggest a low research potential. It is therefore recommended that site 41MX82 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX83

Site 41MX83 is a very small, low density prehistoric site located on a large natural rise along an upland terrace. The site is at an elevation of 82 m amsl and covers approximately 450 m² (30-x-15 m). The nearest water source is an old channel of White Oak Creek about 100 m to the west. The site is mapped as being on Freestone fine sandy loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded by red, white, and pin oak; maple; hickory; ash; and wildcherry. A moderately dense understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar is present. The only disturbance to the site, besides bioturbation, is a two-track road bisecting the site. This leaves the site with fair contextual integrity.

Twelve shovel tests were excavated in and around site 41MX83, only two of which appeared to fall within the site boundary (Figure 31). Three artifacts were recovered from subsurface shovel testing, for an average of 1.5 artifacts per onsite shovel test. One of the three artifacts was recovered from between 60 and 80 cm beneath the surface. The soil profile revealed by shovel testing consisted of a yellowish brown to pale brown (10YR 5/6 to 10YR 6/3) silty loam, 60 to 90 cm thick, underlain by a light brown (7.5YR 6/4) clay loam. The three artifacts collected from site 41MX83 were all unmodified debitage. They consist of two chert bifacial thinning flakes, one less than 6.3 mm in size and the other between 6.3 and 9.5 mm in size, and one quartzite secondary flake ranging from 9.5 to 12.5 mm in size.

In summary, site 41MX83 is a very small, low density site of an unknown prehistoric period located on a large natural rise along an upland terrace. Given the low density of artifacts and the small size of the site, it is classified as a low intensity occupation. These factors, along with the fair contextual integrity of the site and the limited nature of the artifact sample, combine to suggest that the site has a low research potential.

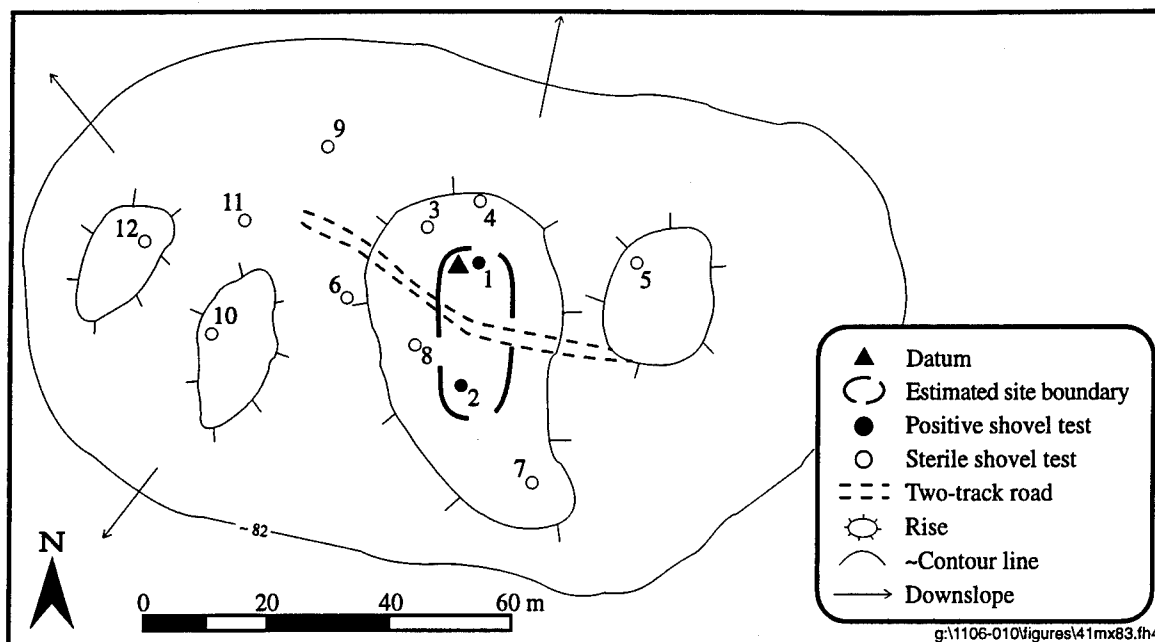


Figure 31. Pace and compass map of site 41MX83.

Therefore, it is recommended that site 41MX83 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX84

Site 41MX84 is a medium-sized, low density prehistoric site located on a large upland finger ridge. It is at an elevation of 82 m amsl and encompasses approximately 3,400 m² (150-x-70 m). The nearest water source is an old channel of White Oak Creek approximately 50 m west of the site. It is mapped as being at the boundary between Freestone fine sandy loam, 1 to 3 percent slopes; Estes clay loam, frequently flooded; and Gladewater clay, frequently flooded (for descriptions of these soils, see Chapter 2). The site area is heavily wooded with red, white, and pin oak; maple; hickory; ash; and wildcherry. A dense understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar is present. The only disturbance noted at the site is a small amount of bioturbation. The contextual integrity of the site is believed to be good.

Fourteen subsurface shovel tests were excavated in and around site 41MX84. Eight of these shovel tests are within the site boundary, while six contained artifacts (Figure 32). In all, 13 artifacts were collected from the site, for an average density of 1.6 artifacts per onsite subsurface shovel test. These materials were recovered as deep as 60 cm below the surface. The general soil profile observed during shovel testing begins with a brown to light yellowish brown (10YR 5/3 to 10YR 6/4) sandy loam ranging from 40 to 60 cm deep, underlain by a light yellowish brown to yellowish red (10YR 6/4 to 5YR 4/6) silty clay. The artifact sample collected from site 41MX84 consisted entirely of unmodified lithic debitage. This material included one primary flake, two secondary flakes, seven tertiary flakes, and three bifacial thinning flakes. Raw material types among these artifacts include chert (n=8), quartzite (n=4), and Ogallala quartzite (n=1). The flakes tend to be small, with six less than 6.3 mm in size, six ranging in size from 6.3 to 9.5 mm, and one as large as 9.5 to 12.5 mm in size.

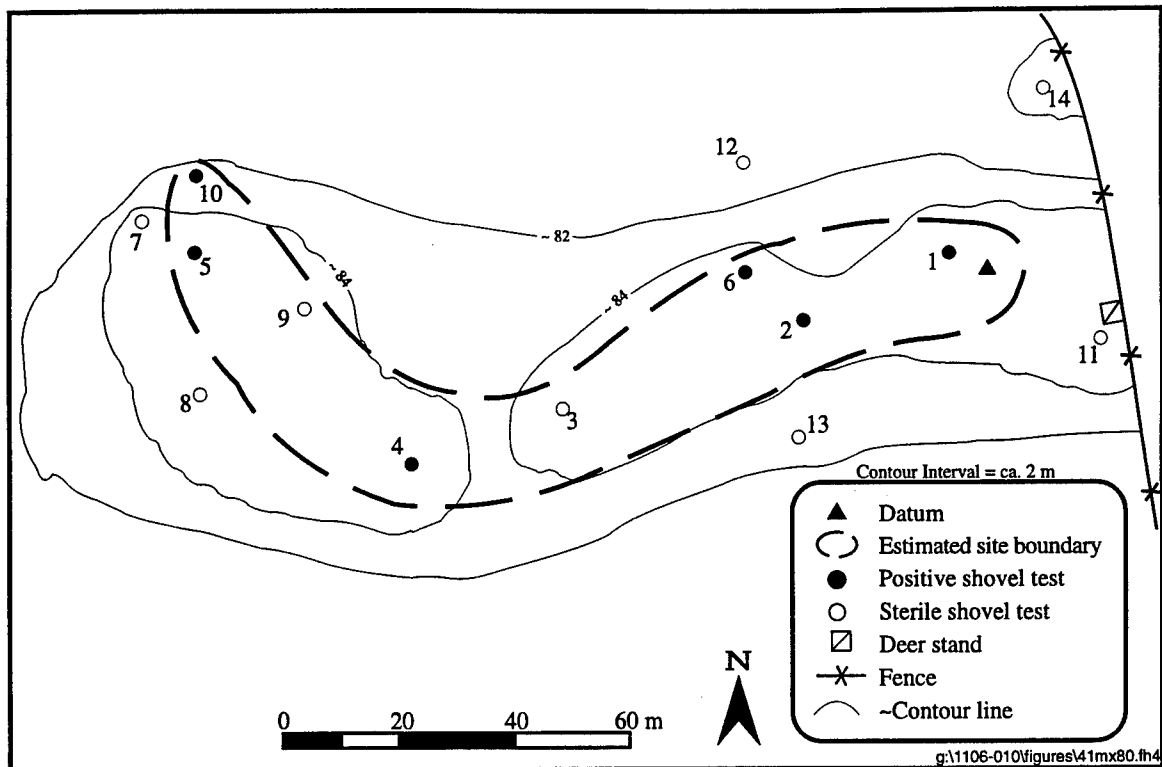


Figure 32. Pace and compass map of site 41MX84.

In summary, site 41MX84 is a medium-sized, low density site of an unknown prehistoric period, located on a large upland finger ridge. Despite its size, the site has been classified as a low intensity occupation based on its low subsurface density and the limited quantity and variety of the material collected. Despite this, the site does show good contextual integrity and may have a good research potential. Consequently, it is recommended that site 41MX84 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX85

Site 41MX85 is a medium-sized, low density prehistoric site located on the southern edge of a large upland ridge overlooking a spring. It is at an elevation of 82 m amsl and covers an estimated 4,500 m² (90-x-50 m). Site 41MX86 is about 35 m to the east. The nearest water source, besides the spring just 10 m east of the site boundary, is White Oak Creek, which forms the southern and western boundaries of the site. The site is mapped as being at the boundary between Gladewater clay, frequently flooded, and Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of these soils, see Chapter 2). The site is heavily wooded with red, white, and pin oak; maple; hickory; ash; and wildcherry. A thin understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar covers the surface of the ground. Erosion was noted along the southern and eastern boundaries of the site, and bioturbation is also present. The site is judged to have good contextual integrity.

Nineteen shovel tests were excavated in and around site 41MX85, with 16 located within the site boundary (Figure 33). Only seven of these units, however, contained any artifacts. In all, 24 artifacts were collected

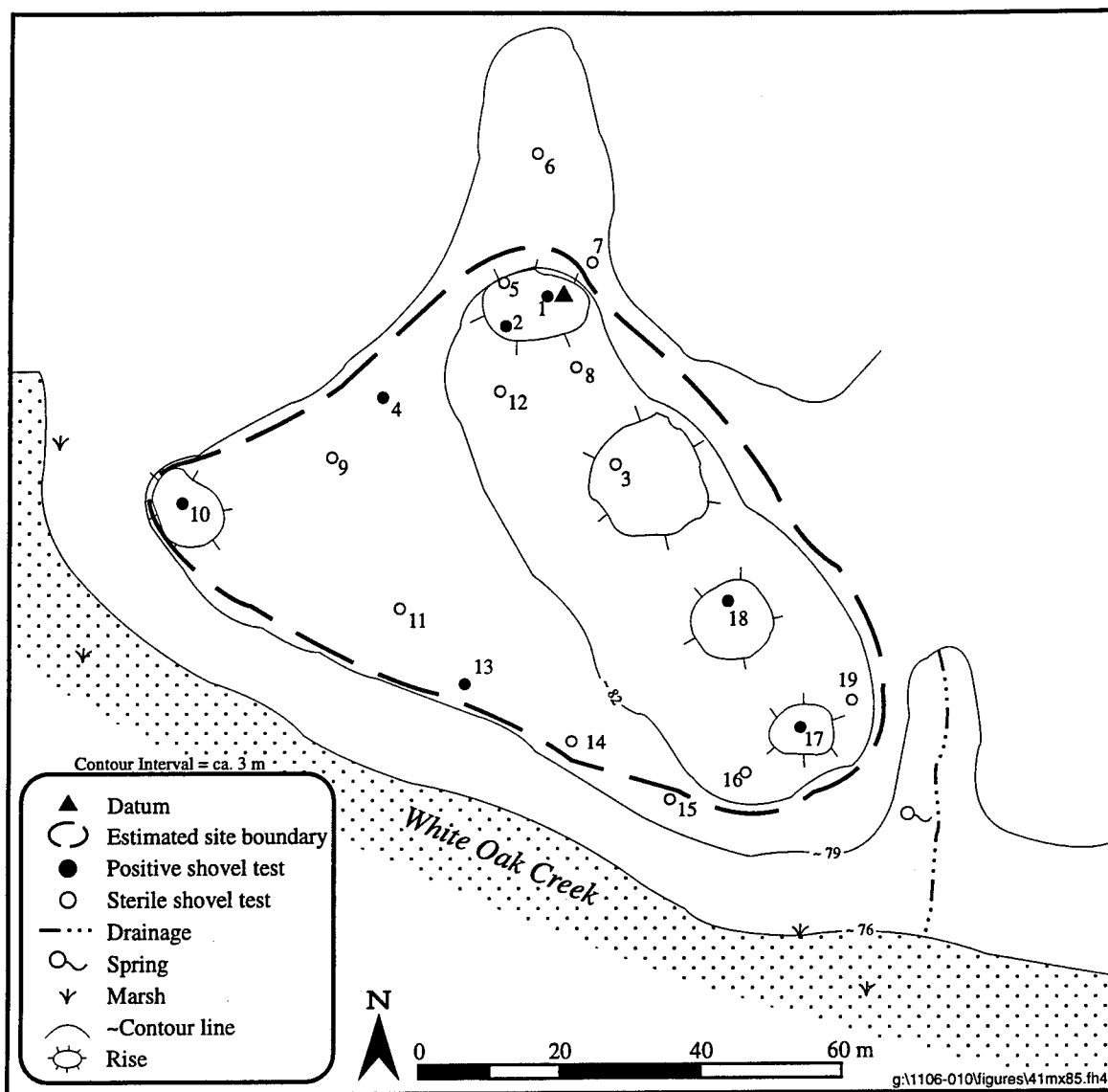


Figure 33. Pace and compass map of site 41MX85.

from subsurface shovel testing at the site, for an average subsurface density of 1.5 artifacts per onsite shovel test. Artifacts were collected as deep as 60 cm below surface and may have continued deeper in Shovel Test 17. The general soil profile observed during shovel testing begins with a brown to yellowish brown (10YR 4/3 to 10YR 5/8) silt loam 20 to 60 cm deep. This is underlain by a light yellowish brown and brownish yellow to brown (10YR 6/4 and 10YR 6/6 to 7.5YR 4/4) silty clay which was usually encountered at 40 to 60 cm below ground surface. In six shovel tests a brown to yellowish brown (10YR 5/3 to 10YR 5/8) silty loam was encountered at a shallow 15 to 20 cm beneath the surface and was underlain by a yellowish brown (10YR 5/8) silty clay.

As noted above, 24 artifacts were collected at site 41MX85. They consist of a single fragment of a finished bifacial tool, two utilized flakes, 20 pieces of unmodified debitage, and one burned rock. The indeterminate finished bifacial tool fragment is made of Ogallala quartzite and measures 24 mm long, 14 mm wide, and

5 mm thick, with a weight of 1.7 grams. It is rectangular in shape. Of the four edges, only one has pressure flake scars on both surfaces. The other three edges have pressure flake scars on one surface only, while the reverse surface has the rough face of a coarse grain inclusion. One of the two utilized flakes is made of chert; measures 23 mm long, 21 mm wide, and 5 mm thick; and weighs 2.5 grams. This tertiary flake has a prominent crushed striking platform and bulb of percussion along with a distal end characteristic of hinge flake termination. Of the five edges on this artifact, three have microflaking indicative of use-wear. The other utilized flake is silicified wood; measures 21 mm long, 16 mm wide, and 4 mm thick; and weighs 1.5 grams. Cortex covers about 50 percent of the dorsal surface of this secondary flake. This artifact also has a distal end with a hinge termination. The striking platform and bulb of percussion are also present. Of the four edges on this artifact, two have definite microflaking indicative of use-wear. The unmodified debitage consists of two primary flakes, four secondary flakes, seven tertiary flakes, six bifacial thinning flakes, and one piece of shatter. Raw material types observed among the lithic debitage include Ogallala quartzite (n=7), quartzite (n=7), chert (n=5), and petrified wood (n=1). The lithic debitage varies in size, with one less than 6.3 mm in size, seven from 6.3 to 9.5 mm, five from 9.5 to 12.5 mm, and seven flakes from 12.5 to 19 mm in size. The piece of burned rock is quartzite and weighs 34.0 grams.

In summary, site 41MX85 is a medium-sized, low density site of an unknown prehistoric period located on the southern edge of a large upland ridge overlooking a spring. Although the site has a low artifact density, it has been classified as a high intensity occupation based on its size and the sample variability. In fact, the fairly large variety of artifacts recovered (i.e., a finished bifacial tool fragment, two utilized flakes, 20 pieces of unmodified debitage, and one burned rock) suggests a residential function. This, combined with the good contextual integrity, is felt to give the site a good research potential. It is therefore recommended that site 41MX85 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations, designed to determine its NRHP status, can be undertaken.

Site 41MX86

Site 41MX86 is a small, low density site located on an upland terrace overlooking a spring. Although a small amount of historic material is present on the surface, the site is primarily a prehistoric one. It is at an elevation of 82 m amsl and covers an area of 750 m² (30-x-25 m). Site 41MX85 is about 35 m to the west, across a small drainage. Besides the spring just 30 m to the west, the nearest water source is an unnamed tributary of White Oak Creek about 60 m south of the site. The site is mapped as being on Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site area is moderately forested with red, white, and pin oak; maple; hickory; ash; and wildcherry. A thin understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar covers the surface of the ground. The entire terrace has been affected by sheet erosion and bioturbation. Although a two-track road and the remains of a fence pass within 25 m to the east, they are not believed to have affected the site. The site is thus assessed to have fair contextual integrity.

Twelve shovel tests were excavated in and around site 41MX86, only one of which, Shovel Test 3, contained artifacts (Figure 34). This unit, adjacent to a large surface scatter of material in a deflated area, is the only shovel test within the site boundary. It produced two artifacts for an average subsurface density of 2.0 artifacts per onsite shovel test. The two artifacts were collected at 0 to 20 cm below surface. A general soil profile begins with a yellowish brown (10YR 5/6) loamy sand extending 20 to 60 cm below the surface, underlain by a yellowish brown (10YR 5/8) clay. Artifacts observed on the surface included quartzite burned rock, quartzite and chert flakes, the broken tip of a finished bifacial tool, purple glass fragments (probably manganese solarized; 1880-1920), and metal fragments. The dart point tip was the only surface artifact collected. Although a few historic artifacts were observed on the surface of the site, there was no significant historic occupation of the location and they are considered isolated occurrences. Only three prehistoric artifacts, a finished bifacial tool and two pieces of unmodified lithic debitage, were collected from site

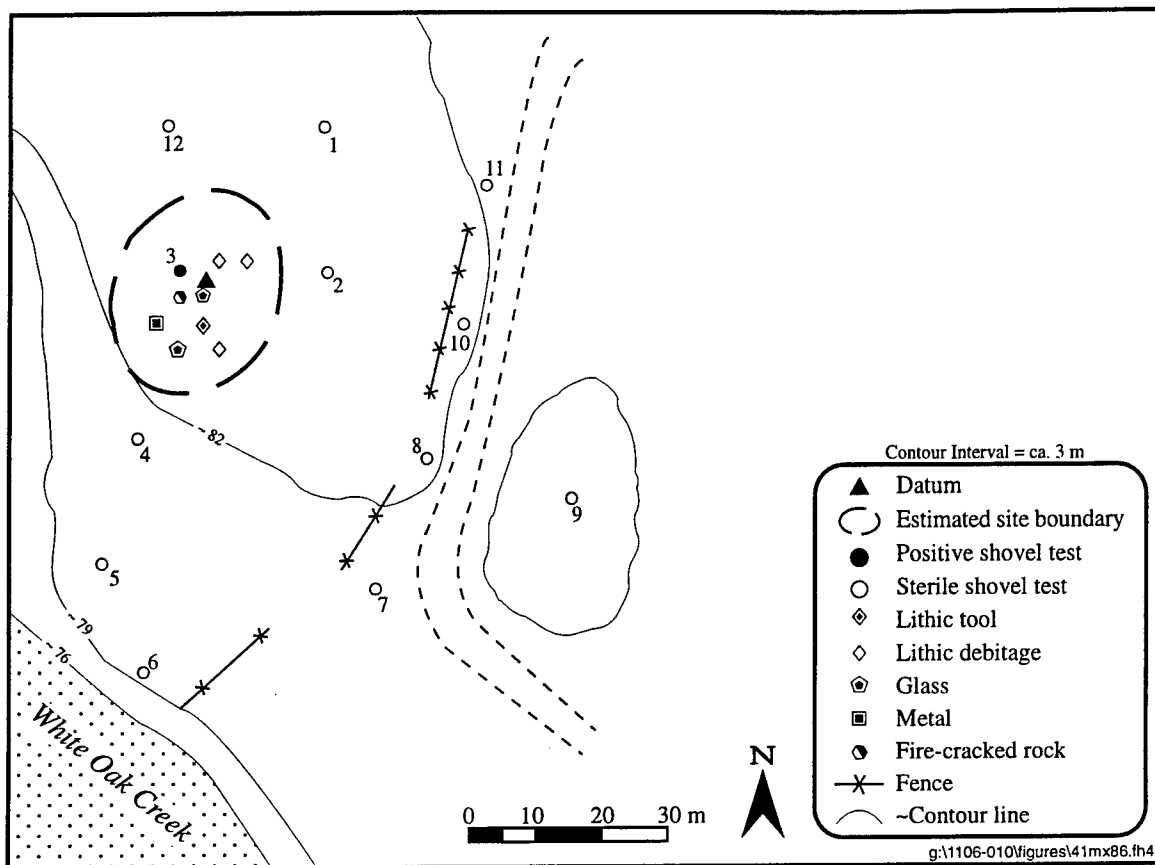


Figure 34. Pace and compass map of site 41MX86.

41MX86. The finished bifacial tool is the tip portion of an untyped dart point collected from the surface. It is made of Ogallala quartzite and measures 28 mm long, 21 mm wide, and 7 mm thick, with a weight of 3.5 grams. The fragment has a plano-convex cross-section and is the proper size for a dart point. The other two artifacts were collected from subsurface shovel testing. They are a quartzite secondary flake and a chert tertiary flake, both measuring between 6.3 and 9.5 mm in size.

In summary, site 41MX86 is a small, low density prehistoric site located on an upland terrace overlooking a spring. The lack of diagnostic artifacts from the site precludes its being dated. Based on its subsurface density and small size, the site is classified as a low intensity occupation. Given its low artifact density and eroded condition, considering the observations just mentioned, it is believed that the site has little research potential. It is therefore recommended that site 41MX86 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41MX87

Site 41MX87 is a small, low density prehistoric site located on a small upland terrace. The site is at an elevation of 81 m amsl and occupies approximately 1,800 m² (60-x-30 m). The nearest water source is an upland drainage 30 m south of the site. The site area is mapped as being on Woodtall fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded with red, white, and pin oak; maple; hickory; ash; and wildcherry. A dense understory of mixed grasses, huckleberry,

sumac, thistle, ragweed, poison oak, and greenbriar covers the surface of the ground. The site area shows evidence of bioturbation. A two-track road passes within 10 m to the south of the site boundary and a fence passes through the northern portion of the site. The area of the site north of the fence has been cleared, most likely by heavy machinery. The site is thus judged to have fair contextual integrity.

Thirteen shovel tests were excavated in and around site 41MX87 (Figure 35). Six of these were within the site and used to define its limits. Nine artifacts were recovered through shovel testing, for an average subsurface density of 1.5 artifacts per onsite shovel test. The general soil profile observed during shovel testing consisted of a brown to yellowish brown (10YR 4/3 to 10YR 5/4) sandy loam, 60 to 80 cm deep. The exception to this was Shovel Test 11, where 10 cm of a gray (10YR 5/1) silty loam was underlain by a yellowish red (5YR 5/6) clay. Artifacts were recovered from depths of 60 to 80 cm below surface. The artifact sample is composed of eight prehistoric ceramics and one unfinished biface. The ceramic sample consists of two fragmentary sherds (i.e., "sherdlets") and six body sherds. All are tempered with clay/grog. Three sherds are undecorated, two have punctations and incising, and one is brushed. Sherd thickness for the six for which this can be measured ranges from 4.0 to 10.0 mm, with a mean of 8.0 ± 2.0 mm and a median of 9.0 mm. This mean is inflated due to the fact that the four sherds from Shovel Test 4 are from the same vessel, an apparent carinated bowl with a particularly thick body wall. This vessel was decorated with tool punctations and crude incised lines, but could not be typed (cf. Canton Incised). The other decorated sherd is a finely brushed body sherd which may be Pease Brushed-Incised. The unfinished biface is an unidentified fragment made of chert. It measures 16 mm long, 10 mm wide, and 7 mm thick, and weighs .8 gram.

In summary, site 41MX87 is a small, low density prehistoric site located on a small upland terrace. Although none of the small ceramic sample from this site can be typed positively, the presence of a possible sherd of Pease Brushed-Incised suggests a Middle-Late Caddoan date. Based on its small size and low artifact density, the site is classified as a low intensity occupation. Despite this, the site does have fair contextual integrity and may have a good research potential. Consequently, it is recommended that site 41MX87 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX88

Site 41MX88 is a small, moderate density prehistoric site located on a small terrace which extends southward from a larger ridge. The site is at an elevation of 82 m amsl and covers approximately 875 m² (35-x-25 m). The nearest water source is an upland drainage about 75 m south. The site is mapped as being on Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site area is moderately wooded with red, white, and pin oak; maple; hickory; ash; and wildcherry. A very dense understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar covers the surface of the ground. Bioturbation is also present. The site is thus judged to have good contextual integrity.

Twelve shovel tests were excavated in and around site 41MX88, five of which are within the defined site limits (Figure 36). Just three of these five shovel tests produced a total of 20 artifacts, for an average subsurface density of 4.0 artifacts per onsite shovel test. Shovel Test 1 provided 75 percent (n=16) of the artifact sample, all prehistoric ceramics. The soil profile begins with a brown to yellowish brown (10YR 4/3 to 10YR 5/4) silty loam, about 20 cm thick, which is underlain by a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/8) sandy loam, 20 to 40 cm deep. This was underlain in some shovel tests by a yellowish red to reddish brown (5YR 4/6 to 5YR 5/4) silty clay loam. Artifacts were recovered from depths of 60 to 80 cm beneath the surface in Shovel Tests 1 and 2.

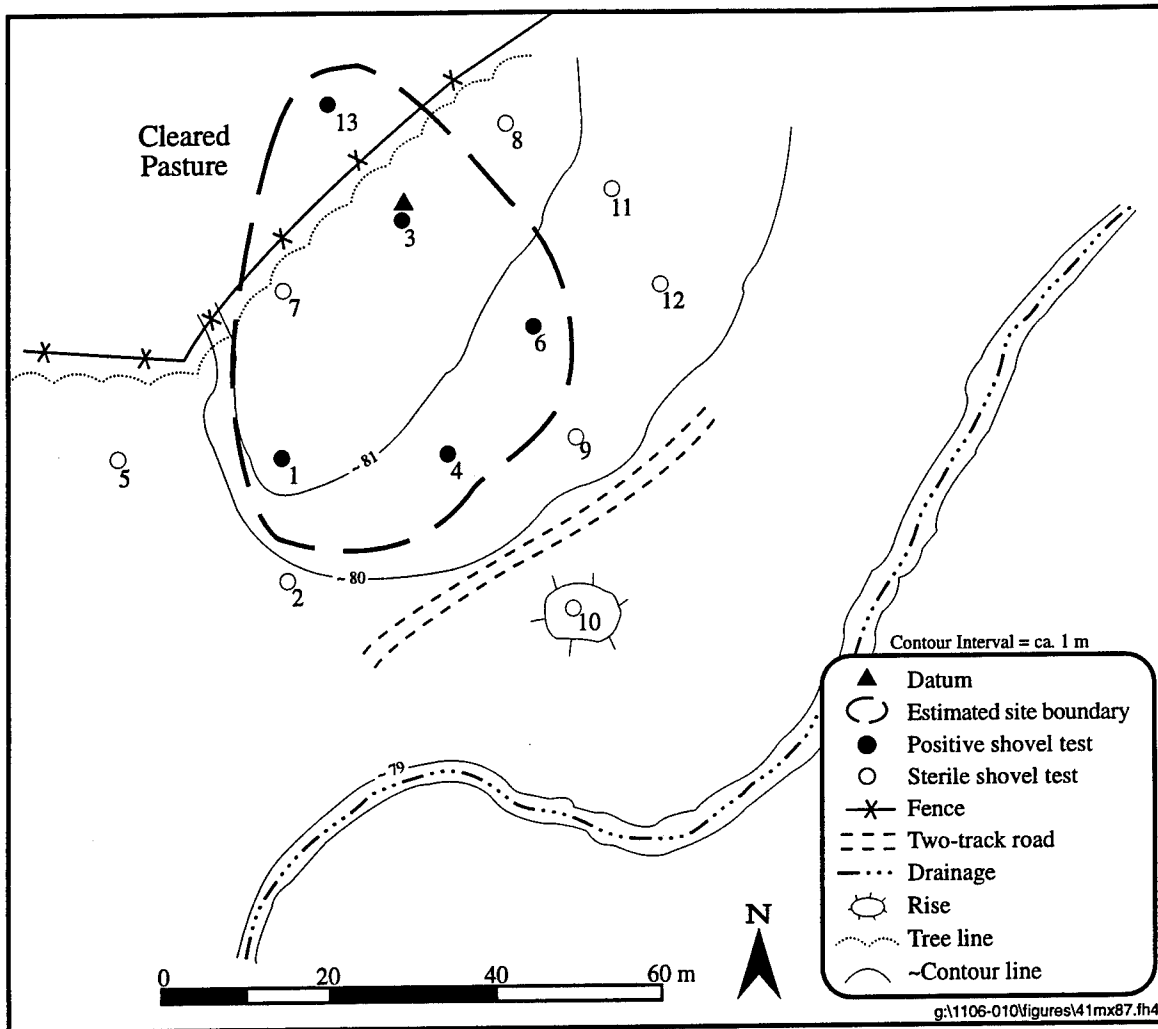


Figure 35. Pace and compass map of site 41MX87.

The artifact sample from site 41MX88 consists almost entirely of prehistoric ceramics ($n=19$), the sole exception being a piece of burned rock. The sample of ceramic sherds consists of 17 body sherds and two rim sherds. Eighteen are tempered with clay/grog, and one is tempered with clay/grog and bone. Sherd thicknesses are 5.0 mm ($n=2$), 6.0 mm ($n=6$), 7.0 mm ($n=6$), 8.0 mm ($n=2$), 9.0 mm ($n=2$), 10.0 mm ($n=1$), and 12.0 mm ($n=1$). The mean thickness is 7.1 ± 1.6 mm. Decorative modes include body brushing ($n=2$), rim brushing ($n=1$), rim brushing with tool punctation ($n=1$), fingernail punctating or impressing with an applique ridge ($n=1$), and linear tool punctation with an applique ridge ($n=1$). One of the two rim sherds appears to be from a vessel with a straight, direct rim and a rounded, exteriorly flattened lip (Figure 37a). Horizontal brushing is present below the lip. The other rim sherd is from a jar with an everted, direct rim and a rounded lip, flattened on top (Figure 37b). A 42-mm-wide zone of brushing occurs below the rim, bordered by a row of tool punctations below. This sherd has been typed as Pease Brushed-Incised. The burned rock was quartzite and weighed 2.5 grams.

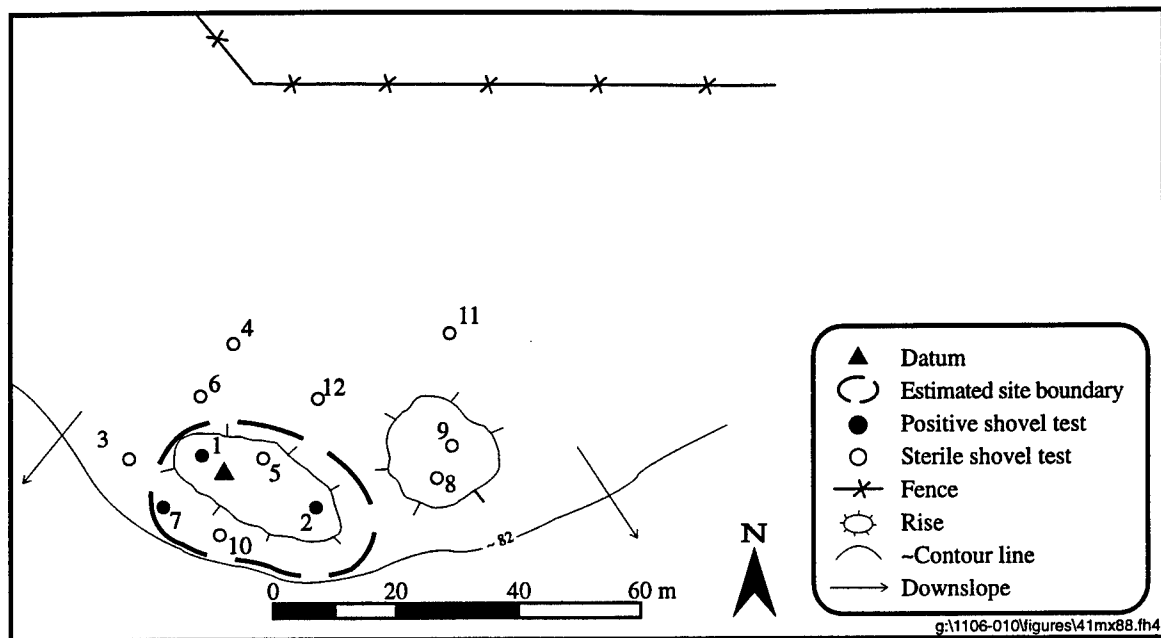


Figure 36. Pace and compass map of site 41MX88.

In summary, site 41MX88 is a small, moderate density prehistoric site located on a small terrace which extends southward from a larger ridge. The presence of a sherd of Pease Brushed-Incised on the site suggests a Middle-Late Caddoan occupation. Despite its small size, the site is classified as a high intensity occupation on the basis of its subsurface artifact density, while the preponderance of ceramics in the artifact sample may indicate a residential function. This possibility, together with the site's good contextual integrity, suggests that it may have a good research potential. Consequently, it is recommended that site 41MX88 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations designed to determine its NRHP status can be undertaken.

Site 41MX89

Site 41MX89 is a small, low density prehistoric site located on an isolated finger ridge in the floodplain of White Oak Creek. The site is at an elevation of 81 m amsl and occupies an estimated 2,000 m² (100-x-20 m). The nearest water source is White Oak Creek, about 175 m to the north. The site is mapped as being on Freestone fine sandy loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded with red, white, and pin oak; maple; hickory; ash; and wildcherry. A sparse understory of mixed grasses, huckleberry, sumac, thistle, ragweed, poison oak, and greenbriar covers the surface of the ground. Bioturbation is the only disturbance present. Contextual integrity is thus considered to be good.

Twelve shovel tests were excavated in the proximity of site 41MX89, with seven shovel tests within the site boundary, defined largely by topography (Figure 38). Only five of these tests, however, contained any artifacts. In all, 10 artifacts were collected from the site, for an average subsurface density of 1.4 artifacts per onsite shovel test. Cultural deposits were up to 40 cm deep. The profile for the site consists of a brown to yellowish brown (10YR 4/3 to 10YR 5/4) silt loam down to 80 cm. The subsoil was not reached by any of the shovel tests. The 10 artifacts collected from site 41MX89 were all pieces of unmodified lithic debitage. Two secondary flakes, six tertiary flakes, and two bifacial thinning flakes were recovered. Raw

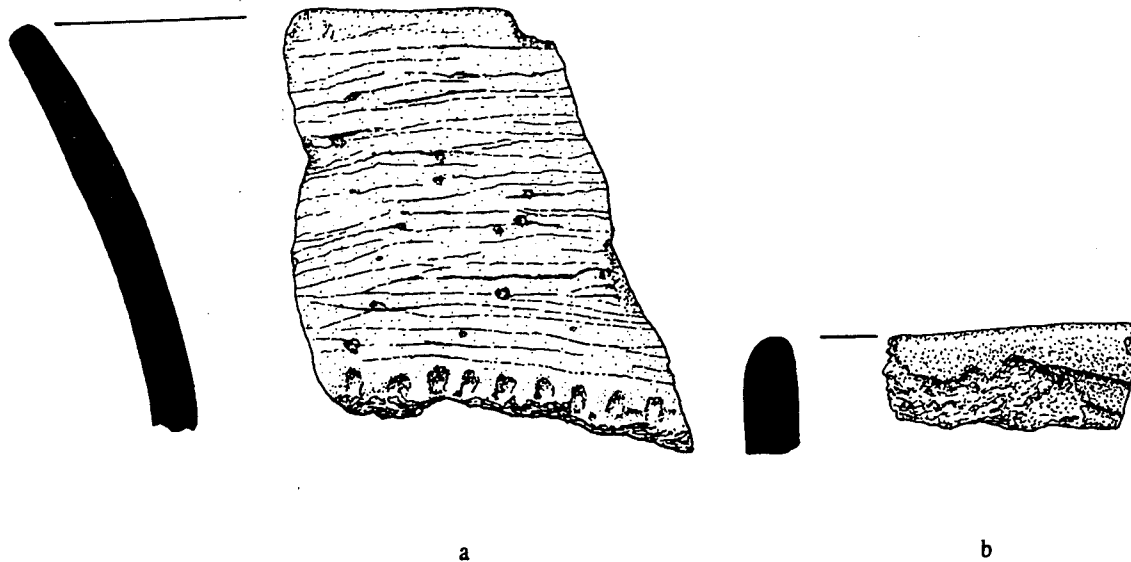


Figure 37. Decorated ceramic sherds recovered from site 41MX88: (a) Pease Brushed-Incised rim (Shovel Test 1, Level 4); (b) unidentified brushed rim (Shovel Test 1, Level 4) (Scale 1:1).

material types observed include Ogallala quartzite (n=4), chert (n=4), and quartzite (n=2). The flakes are small, with five less than 6.3 mm in size and five ranging from 6.3 to 9.5 mm in size.

In summary, site 41MX89 is a small, low density site of an unknown prehistoric period, located on an isolated narrow ridge in the floodplain of White Oak Creek. Based on the site's size and subsurface density, as well as the limited quantity and lack of variety in the artifact sample, it has been classified as a low intensity occupation. Despite this, the site has good contextual integrity and may have a good research potential. Therefore, it is recommended that site 41MX89 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX90

Site 41MX90 is a small, high density prehistoric site located on a series of natural rises along a low upland remnant adjacent to White Oak Creek. The modern channel of White Oak Creek is immediately west of the site, while the landform the site is on appears to have been formed by meanders of White Oak Creek. The site is at an elevation of 80 m amsl and covers an estimated area of 1,150 m² (135-x-20 m). The site is mapped as being on Gladewater clay, frequently flooded. Included within this map unit are small areas of Kaufman clay, Texark clay, and Nahatche loam-silty clay-loam (for a description of these soils, see Chapter 2). The site is covered by a moderate to dense hardwood forest composed of red oak, pin oak, sweetgum, hickory, box elder, elm, and dogwood, with a dense understory of saplings, greenbriar, and bamboo cane. A thick mat of grasses and leaves prevented good ground surface visibility. Disturbance was limited to bioturbation, which includes a few armadillo burrows. The site is believed to possess good contextual integrity.

Thirteen shovel tests were excavated in and around site 41MX90, five of which are within the site boundary (Figure 39). These units contained a total of 36 artifacts, for an average density of 7.2 artifacts per onsite shovel test. Artifacts were found as deep as 80 cm below surface. The soil profile revealed through shovel

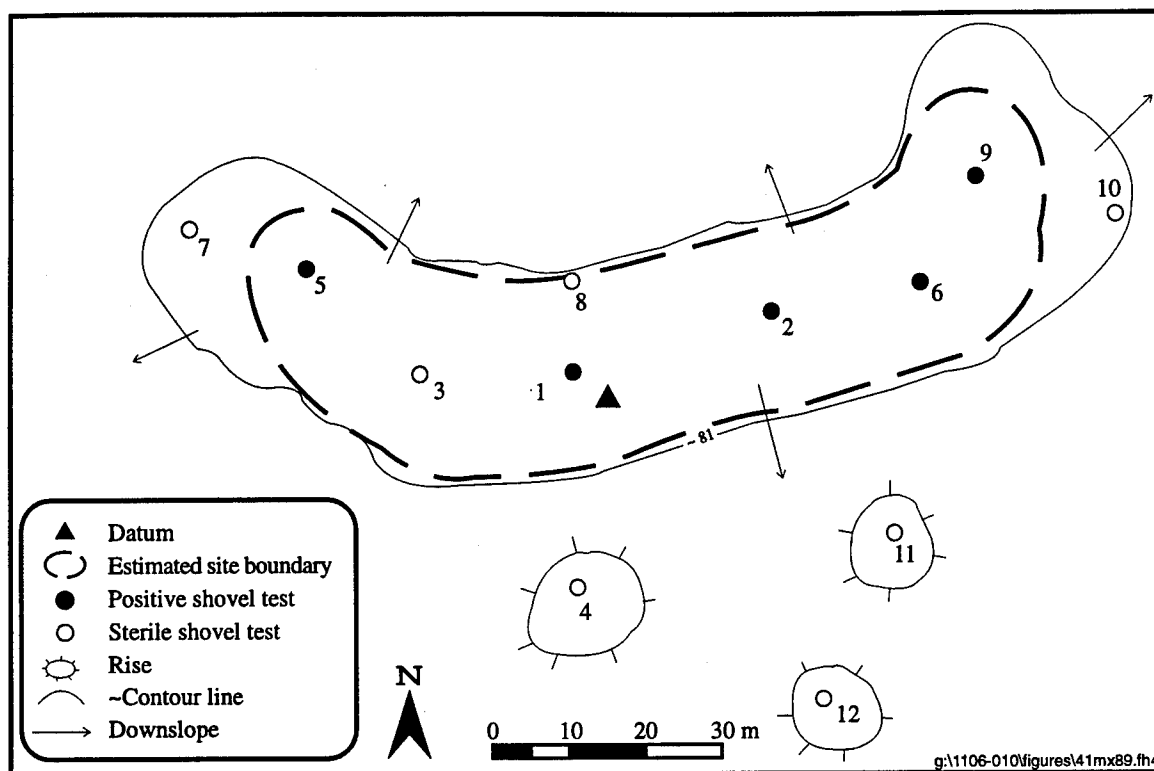


Figure 38. Pace and compass map of site 41MX89.

testing began with a brown to yellowish brown (10YR 4/3 to 10YR 5/6) silty loam, 40 to 80 cm deep, underlain by a reddish brown to brown (5YR 4/4 to 7.5YR 4/4) silty clay loam. Deeper silty loam soils were found on the rises. The 36 artifacts collected from site 41MX90 consist of three prehistoric ceramic sherds, an unfinished biface fragment, 30 pieces of unmodified lithic debitage, and two burned rock fragments. The three prehistoric ceramics were all plain body sherds with clay/grog tempering. Sherd thicknesses were 5.0 mm (n=1) and 6.0 mm (n=2). All three were recovered from the same test unit (Shovel Test 2), but they do not appear to be from the same vessel. The unfinished biface fragment is of chert; measures 19 mm long, 20 mm wide, and 8 mm thick; and weighs 3.5 grams. The unidentified fragment is roughly square in shape with two edges and two snap fracture surfaces. The thickness of the bifacially reduced fragment leads one to believe that a dart-point-sized projectile point was the goal. The lithic debitage is composed of one primary flake, seven secondary flakes, seven tertiary flakes, and 15 bifacial thinning flakes. The majority are small, with nine less than 6.3 mm in size, 10 from 6.3 to 9.5 mm, six from 9.5 to 12.5 mm, four from 12.5 to 19 mm, and only one within 19 to 25 mm in size. Raw material types observed among the lithic debitage include quartzite (n=13), Ogallala quartzite (n=9), chert (n=6), and silicified wood (n=2). The two pieces of burned rock were quartzite and weigh a total of 17.1 grams.

In summary, site 41MX90 is a small, high density prehistoric site located on a series of natural rises adjacent to White Oak Creek. The presence of ceramics on the site indicates an occupation dating to the Early Ceramic or Caddoan period. Given its high subsurface artifact density, this site is classified as a high intensity occupation. Based on the quantity and variety of artifacts recovered, the site may have had a residential function. This spatially discrete, high density site, with very good contextual integrity, is believed to have a good research potential. Therefore, it is recommended that site 41MX90 be considered of unknown

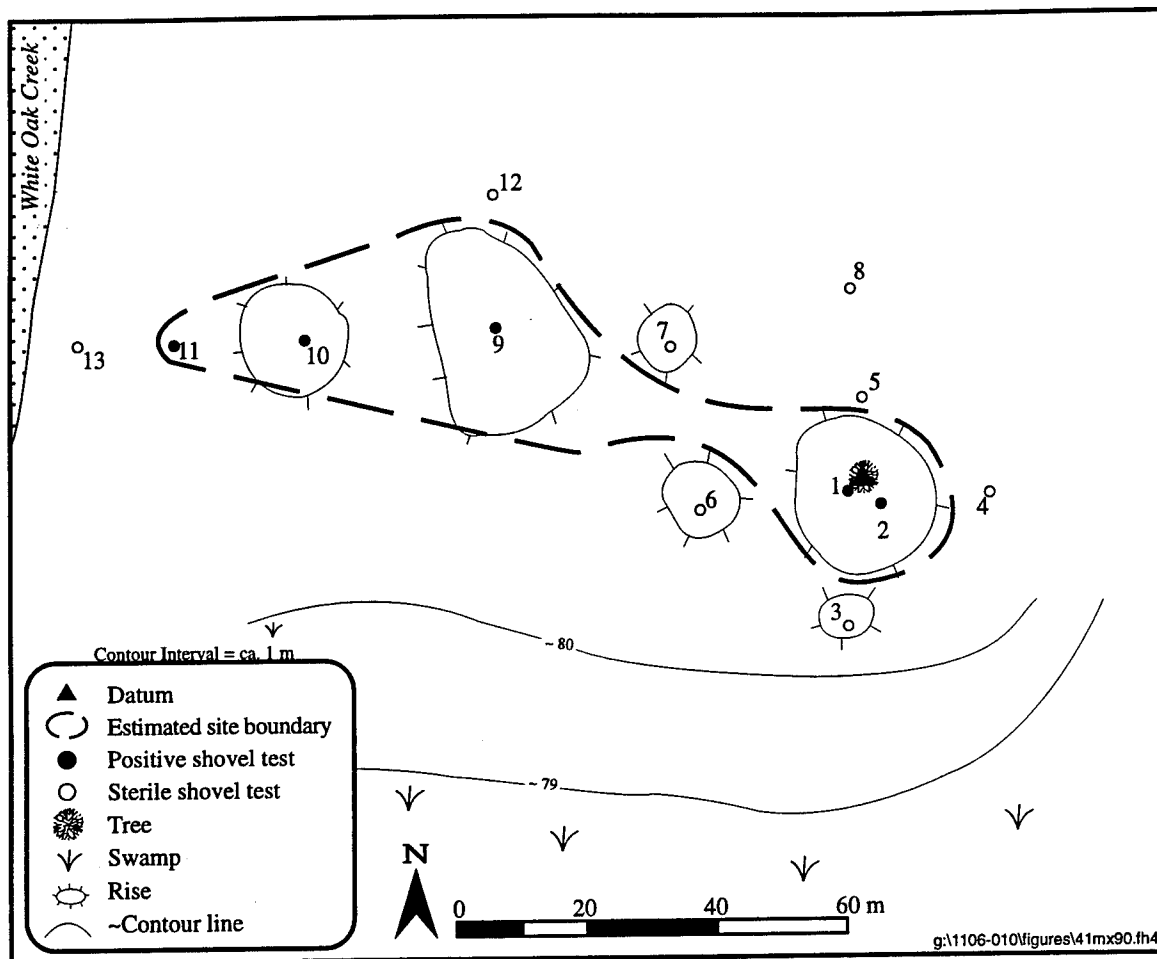


Figure 39 . Pace and compass map of site 41MX90.

eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41MX91

Site 41MX91 is a small, low density prehistoric site located on a flat terrace overlooking the floodplain upstream of the confluence of White Oak Creek and the Sulphur River. The site is at an elevation of 81 m amsl and encompasses approximately 2,400 m² (80-x-30 m). The nearest water source is Twin Lakes, which is about 600 m west of the site. As noted previously, Twin Lakes may have formerly been part of the main channel of the Sulphur River (see Figure 1). The site is mapped as being on the Woodtell-Raino complex, 1 to 3 percent slopes (for a description of this complex, see Chapter 2). It is in an open field of tall mixed grasses, greenbriar, and thistle, with occasional thickets of locust trees. Impacts to the site include a two-track road which crosses the western end of the site and the probable clearing of the area by heavy machinery. The site is therefore judged to have fair contextual integrity.

Twelve shovel tests were excavated in and around site 41MX91, with four being within and defining the site boundary (Figure 40). Eight artifacts were collected from these shovel tests, for an average subsurface

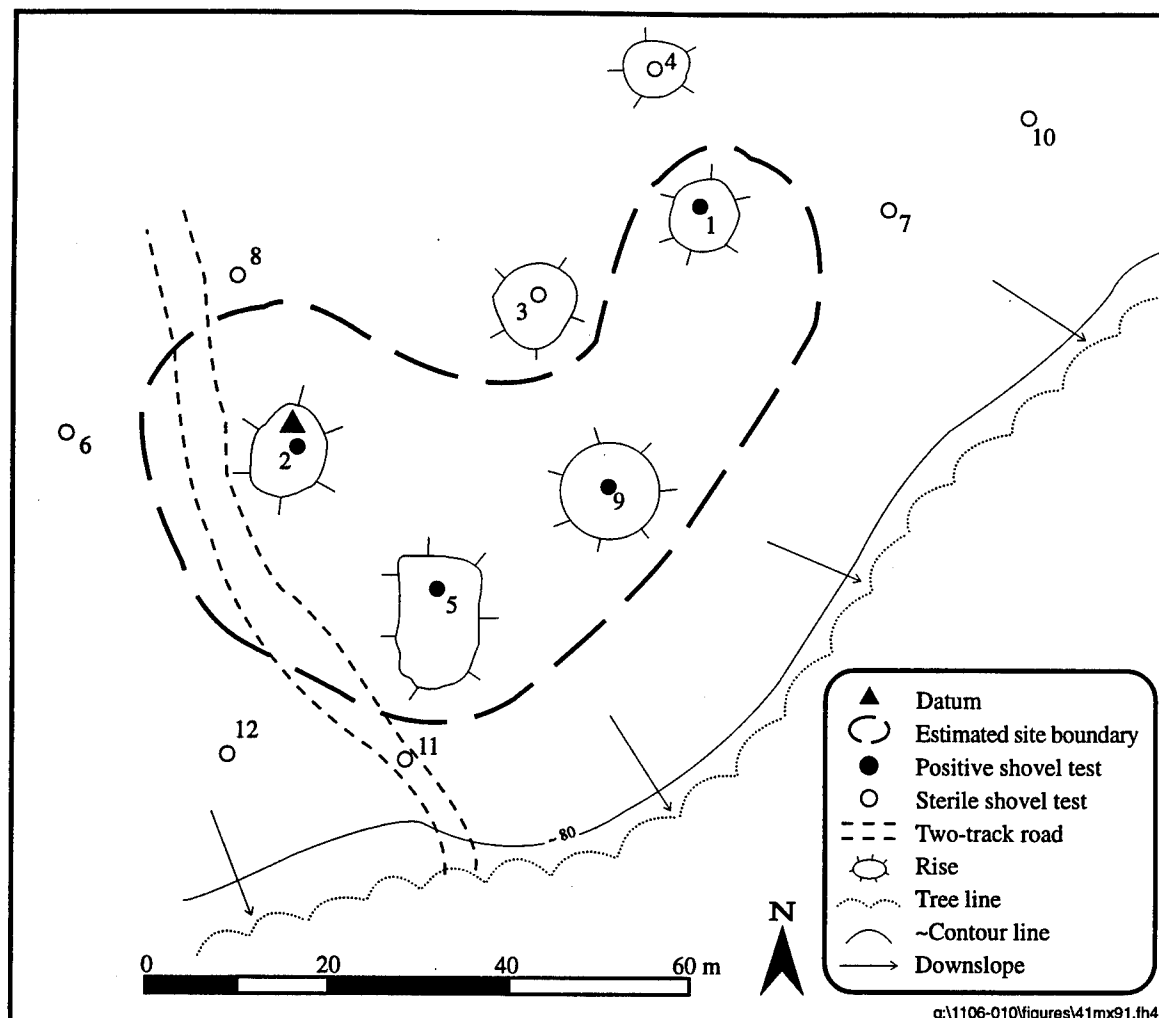


Figure 40. Pace and compass map of site 41MX91.

density of 2.0 artifacts per onsite shovel test. Artifacts were recovered from 40 cm beneath the surface. The general soil profile noted during shovel testing was composed of a light grayish brown to yellowish brown (10YR 4/2 to 10YR 5/6) silt loam extending to 80 cm below surface. Subsoil consisted of a brownish yellow (10YR 6/6) clay. The eight artifacts collected from site 41MX91 consisted of one prehistoric ceramic sherd and seven pieces of unmodified lithic debitage. The single ceramic is a plain body sherd, tempered with clay/grog. It is 5.0 mm thick. The lithic debitage consisted of one secondary flake, five bifacial thinning flakes, and one piece of nondiagnostic shatter. Raw material includes quartzite (n=4), Ogallala quartzite (n=1), silicified wood (n=1), and chert (n=1). The debitage is all within the moderate size range, with four between 9.5 to 12.5 mm and three between 12.5 to 19 mm in size.

In summary, site 41MX91 is a small, low density prehistoric site located on a flat terrace overlooking the floodplain between the confluence of White Oak Creek and the Sulphur River. The presence of a sherd on the site indicates that it dates to the Early Ceramic or Caddoan period. On the basis of its size and subsurface density, this site has been classified as a low intensity occupation. The site has fair contextual integrity and may have good research potential. Therefore, it is recommended that site 41MX91 be considered of

unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX92

Site 41MX92 is a small, moderate density prehistoric site located on a terrace adjacent to the Sulphur River. It is at an elevation of 78 m amsl and occupies an area of about 1,400 m² (70-x-20 m). The nearest water source is the Sulphur River, less than 20 m beyond the northern boundary of the site. The site area is mapped as being on Woodtell fine sandy loam, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site area is heavily wooded with red oak, pin oak, sweetgum, hickory, box elder, elm, and dogwood, with a sparse understory of mixed grasses and greenbriar. Disturbances observed were limited to fairly heavy bioturbation, caused by feral pigs, and erosion of the terrace by the Sulphur River. The site is believed to possess good contextual integrity.

Twelve shovel tests were excavated in and around the site, three of which were within the site boundary (Figure 41). Thirteen artifacts were collected from the site, for an average subsurface density of 4.3 artifacts per onsite shovel test. The general soil profile noted during shovel testing began with a yellowish brown to very pale brown (10YR 5/4 to 10YR 8/2) loamy sand, at least 80 cm deep on the rises and about 40 cm deep in the surrounding soils. In some units a yellowish brown (10YR 6/6) silty clay was encountered at the base of the excavation. Artifacts were recovered down to 60 cm beneath the surface. The 13 artifacts collected from site 41MX92 consist of one prehistoric ceramic sherd, two finished bifacial tools, one unfinished biface, one uniface, and eight pieces of unmodified lithic debitage. The prehistoric ceramic is a plain body sherd, tempered with clay/grog. It is 7.0 mm thick.

Both of the two finished bifacial tools are unidentified dart points. The first is made of chert (Figure 42a). It measures 42 mm long, 25 mm wide, and 6 mm thick, and weighs 6.8 grams. Both lateral edges are straight, and at one time the point had at least one prominent shoulder (that portion of the dart point is missing). The other lateral edge almost rounds into the stem and base except for a minute shoulder. What passes for a stem on this side of the point contrasts greatly with the expanding stem on the opposite side, which was undoubtedly as wide as the shoulder. The base itself is straight. This dart point is also missing most of one bifacially reduced surface. Either the majority of this face was never flaked or during completion of the manufacturing process, or perhaps upon impact after completion, a blow was struck that followed a natural fissure exposing a rough, coarse granular surface. The other untyped dart point is made of silicified wood; measures 42 mm long, 18 mm wide, and 9 mm thick; and weighs 5.4 grams (Figure 42b). This slender, narrow biface has one intact, slightly convex lateral edge. The other edge has been damaged, either during completion of the manufacturing process, or perhaps upon impact after completion. It is believed that the former is the case, as the area where a shoulder and stem should be exhibits crushing and hinge flake scarring produced in an attempt to remove the inclusion which has piled up on one surface of the biface. As with the first dart point, there is only one minute, but clear, shoulder on the tool, below which is an expanding stem. The base of the projectile point is straight.

The single unfinished biface fragment is made of quartzite; measures 40 mm long, 25 mm wide, and 10 mm thick; and weighs 8.8 grams. The artifact appears to be a fragment of a dart point preform. Cortex is present on approximately 6 percent of the artifact. The uniface recovered from the site is identified as a Gossett gouge or uniface. It is made of silicified wood; measures 34 mm long, 26 mm wide, and 15 mm thick; and weighs 16.1 grams. The working edge, or bit, is wider than the base and shows evidence of retouching, or resharpening. What is believed to be use-wear polish is present on a small portion of the ventral surface along the ventral right corner of the bit. Flaking is limited to the four vertical edges and does not extend onto the central portion of the dorsal surface, where the smooth stream-worn cortex remains. Eight pieces of unmodified lithic debitage complete this sample. They consist of two primary flakes, three secondary flakes, one tertiary flake, and two bifacial thinning flakes. Raw materials observed include

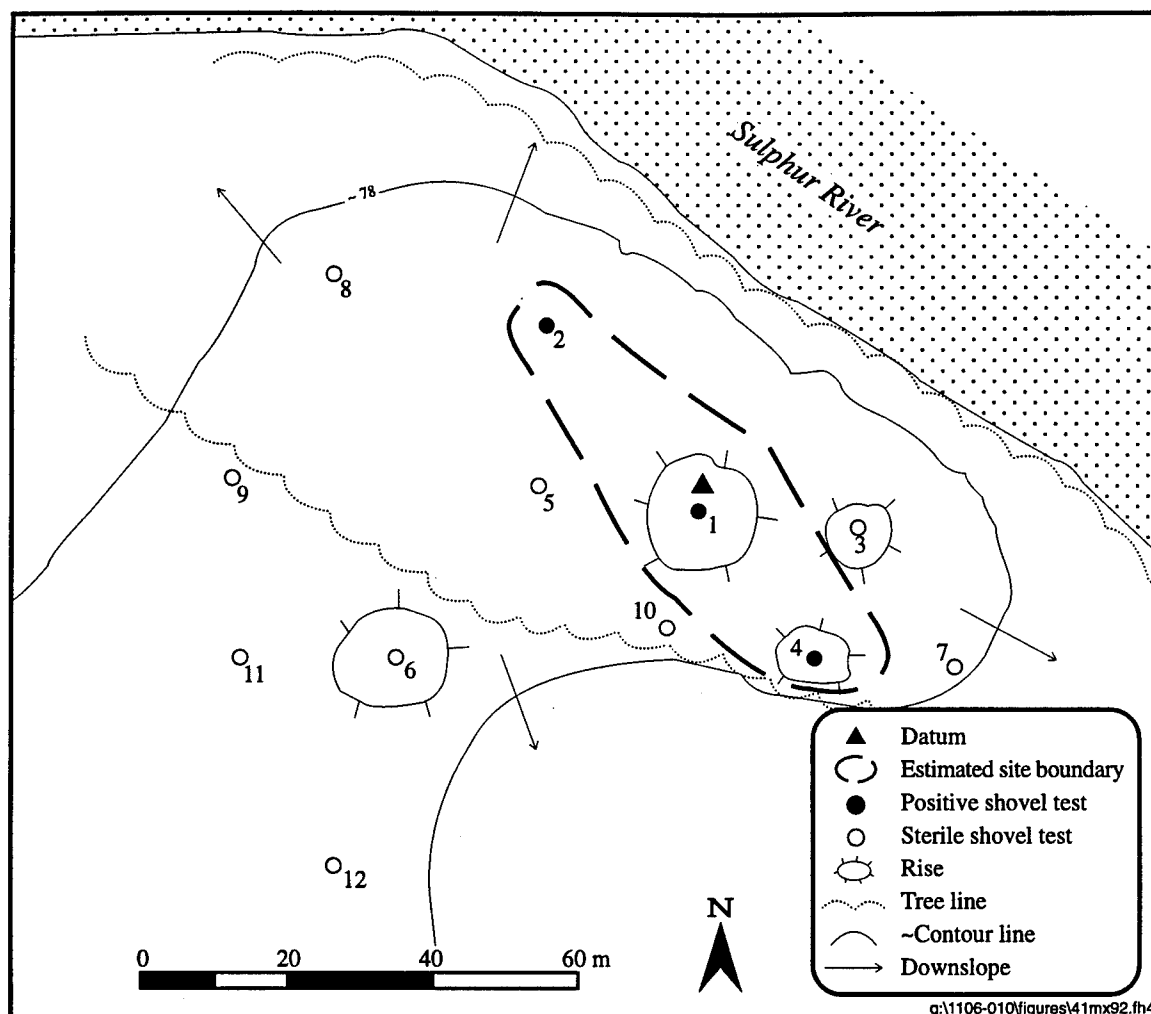


Figure 41. Pace and compass map of site 41MX92.

quartzite (n=3), Ogallala quartzite (n=3), chert (n=1), and silicified wood (n=1). The flakes vary in size, with three ranging from 6.3 to 9.5 mm in size, two from 9.5 to 12.5 mm, two from 12.5 to 19 mm, and one from 19 to 25 mm in size.

In summary, site 41MX92 is a small, moderate density prehistoric site located on a terrace adjacent to the Sulphur River. The two dart points and the Gossett gouge recovered from the site suggest a Late Archaic occupation, while the presence of a ceramic sherd could indicate either an Early Ceramic or a Caddoan occupation. The site is classified as a high intensity occupation, based on its moderate subsurface artifact density and the number of artifacts recovered. The high proportion of tools present at the site, in comparison to many of the other sites recorded during this survey, suggests a residential function. These factors, combined with the good contextual integrity of the site, give it a good research potential. Consequently, it is recommended that site 41MX92 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

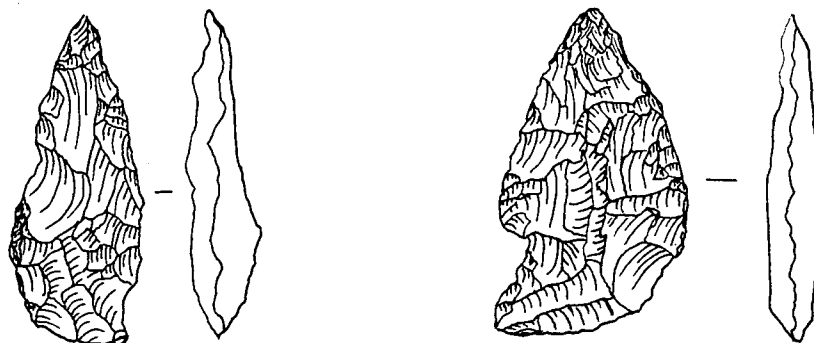


Figure 42. Unfinished dart points recovered from site 41MX92 (Shovel Test 4, Level 3) (Scale 1:1).

Site 41MX93

Site 41MX93 is a small, low density prehistoric site located on a large, isolated knoll in the floodplain of the Sulphur River. It is at an elevation of 82 m amsl and covers an area of about 1,625 m² (65-x-25 m). The nearest water source is the Sulphur River, which is about 80 m to the northeast. The site is mapped as being on Texark clay, frequently flooded, a nearly level and poorly drained soil found on the floodplain of the Sulphur River (for a description of this soil, see Chapter 2). The knoll is heavily wooded with red oak, pin oak, sweetgum, hickory, and elm, with a sparse understory of mixed grasses and greenbriar. Disturbances observed were limited to moderately heavy bioturbation caused by feral pigs and sheet erosion. The site has good contextual integrity.

Twelve shovel tests were excavated in and around site 41MX93, five within the site boundary (Figure 43). These units were located on the second terrace above the floodplain. In all, seven artifacts were recovered from subsurface shovel testing at the site, for an average density of 1.4 artifacts per onsite shovel test. An additional two surface flakes were collected. The general soil profile for the site began with a light gray to very pale brown (10YR 7/2 to 10YR 7/4) compact silt, barely 20 cm thick, underlain by a strong brown (7.5YR 4/4) clay subsoil. An exception to this was Shovel Test 7, in which a considerably darker, dark grayish brown (10YR 4/2) compact silt was encountered above the clay. The nine artifacts recovered from the site (seven from shovel tests and two from the surface) include one core fragment and eight pieces of unmodified lithic debitage. The very small core fragment is of an indeterminate form and is made of quartzite. It measures 20 mm long, 17 mm wide, and 11 mm thick, and weighs 3.3 grams. The eight pieces of unmodified debitage consist of two primary flakes, two secondary flakes, two tertiary flakes, and two bifacial thinning flakes. Raw materials among the lithic debitage consist of chert (n=5) and Ogallala quartzite (n=3). The flakes tend to be small, with six ranging from 6.3 to 9.5 mm in size and two from 9.5 to 12.5 mm in size.

In summary, site 41MX93 is a small, low density site of an unknown prehistoric period, located on a large, isolated knoll in the floodplain of the Sulphur River. Based on the size and density of the site, it has been classified as a low intensity occupation. Despite the limited nature of the artifact sample recovered here, the site appears to have good contextual integrity and it may have good research potential. Consequently, it is

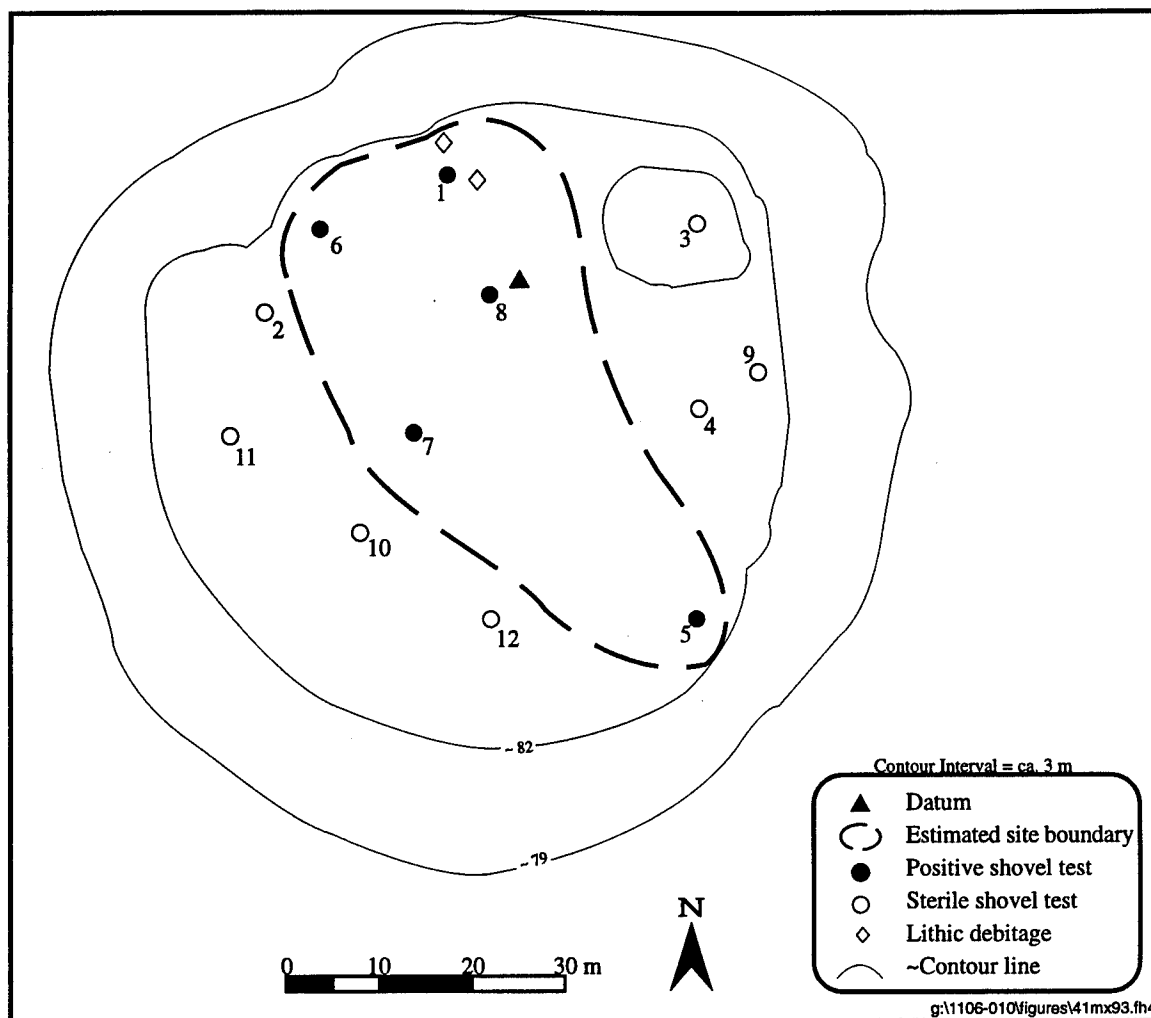


Figure 43. Pace and compass map of site 41MX93.

recommended that site 41MX93 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX94

Site 41MX94 is a small prehistoric surface site located in a two-track road on a narrow upland ridge overlooking White Oak Creek. It is at an elevation of 84 m amsl and occupies an area of about 250 m² (50-x-5 m). The nearest water source is White Oak Creek, which is about 350 m to the south. Soil in the area is mapped as being Freestone fine sandy loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The ridge is wooded with red oak, white oak, sweetgum, hickory, dogwood, and ash, with a sparse understory of mixed grasses, thistle, and greenbriar. Disturbances in the area include the two-track road in which the site was found and the heavy sheet erosion along this road. The contextual integrity of the site is uncertain. If the artifacts observed in the road have been redeposited from elsewhere, then the site has no contextual integrity. On the other hand, if they represent deflation of intact archeological deposits, then the site may have good contextual integrity.

Twelve shovel tests were excavated at the site, all of which were sterile (Figure 44). Only surface artifacts were observed and collected. The generic soil profile for the site begins with a light gray to very pale brown (10YR 7/2 to 10YR 7/4) loamy sand a maximum of 5 cm deep, the exception being Shovel Test 8 which had 20 cm of soil and appeared to be on a natural rise. The underlying subsoil is a strong brown to brownish yellow (7.5YR 5/8 to 10YR 6/6) clay. The southern part of the site has been almost entirely deflated. Only two artifacts, a finished bifacial tool fragment and a uniface, were collected from site 41MX94. Both were observed on the surface along with unmodified debitage and burned rock. The finished bifacial tool fragment appears to be the medial and basal portion of a Meserve point (Figure 45a). It is made of red to reddish yellow chert, grading to pinkish gray, and measures 37 mm long, 25 mm wide, and 7 mm thick, with a weight of 8.1 grams. About one-third of the base is present on this predominantly medial fragment. The artifact has two fractures, one perpendicular to the lateral edges that removed half the body and the other at roughly a 45-degree angle to the base which removed about two-thirds of the base, leaving 26 mm of the lateral edge. One lateral edge has definitely been reworked, exaggerating the alternate, right-edge beveling visible in cross-section. This lateral edge and base has the characteristic appearance of a Meserve point. The flaking on the body shows no patterning. The other artifact is a narrow, unifacial limace made of black chert, with white patches (Figure 45b). Gramly (1992:37) defines a limace as "a narrow, slug-shaped, unifacial, flaked stone tool having steep edge angles and a high dorsal surface that is often rounded." He further notes that it is "a rare form but is present in most large-sized Folsom, Clovis, and other fluted point Paleo-Indian assemblages." This tool measures 51 mm long, 17 mm wide, and 10 mm thick, and weighs 9.6 grams. The tool has steep edges forming a high dorsal ridge on the fairly pointed distal end which tapers off once it reaches the rounded proximal end. This proximal end bears the original striking platform below which, on the concave ventral surface, is a distinct bulb of percussion. The lateral edges bear heavy use-wear flaking. Use of the tool has also caused limited flaking on the ventral surface.

In summary, site 41MX94 is a small prehistoric site, identified solely on the basis of surface artifacts, located on a narrow upland ridge overlooking White Oak Creek. The only tools collected from the site are a fragmentary Meserve-like point and a limace, both of which suggest a Late Paleo-Indian occupation. Unfortunately, a number of shovel tests in the vicinity of the surface artifacts failed to locate any subsurface remains, but it is possible that any intact Paleo-Indian deposits may be very low density and difficult to locate in survey shovel tests. Because of its size and low density (at best), the site has been classified as a low intensity occupation. Normally, such a site would be considered to have a low research potential, but if even low density deposits dating to the Paleo-Indian period are present at site 41MX94, it would have a high research potential. Therefore, it is recommended that site 41MX94 be considered of unknown eligibility for inclusion in the NRHP, and the site should be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41MX95

Site 41MX95 is a very small, low density prehistoric site located on a series of natural rises on a gently sloping upland surface north of White Oak Creek. The site is at an elevation of 82 m amsl and encompasses approximately 600 m² (50-x-15 m). The modern channel of White Oak Creek is about 460 m south of the site. The site is mapped as being on Woodtall fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is covered by a moderate to dense hardwood forest dominated by red oak, pin oak, sweetgum, hickory, hackberry, and sassafras trees. The understory is composed of greenbriar, poison ivy, and saplings. A thick grass and leaf mat covers the site providing no ground surface visibility. Disturbances observed at the site include bioturbation and sheet erosion, which has exposed the subsoil in several areas. Contextual integrity for the site is judged to be good.

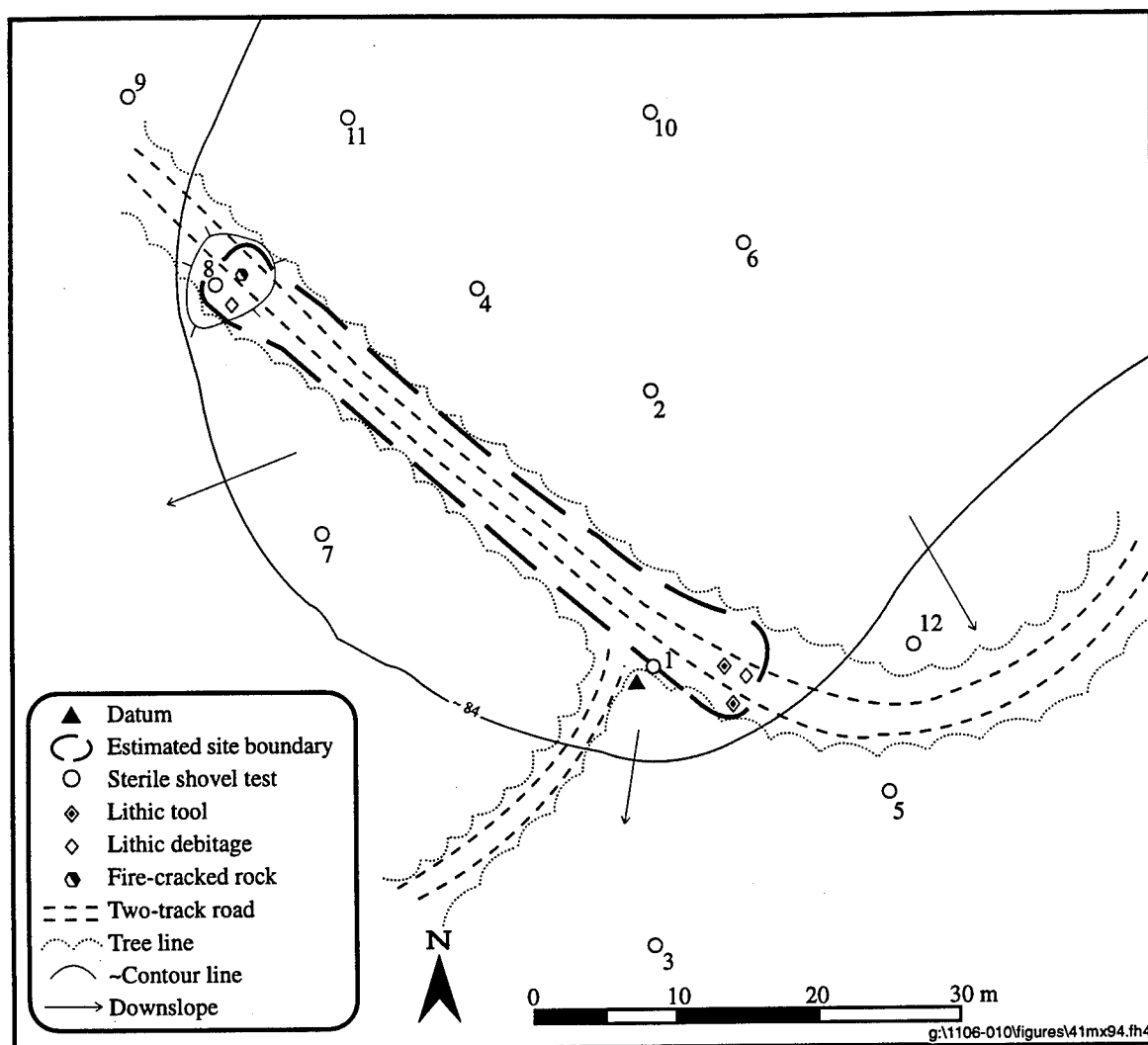


Figure 44. Pace and compass map of site 41MX94.

Twelve shovel tests were excavated in and around the site, with three within the site boundary (Figure 46). In all, five artifacts were excavated from the site, for an average density of 1.7 artifacts per onsite shovel test. Artifacts were found down to 30 cm below surface. The general soil profile observed at the site begins with a dark yellowish brown to pale brown (10YR 4/4 to 10YR 6/4) compact sandy loam, 20 to 40 cm deep, underlain by a strong brown (7.5YR 5/6) clay subsoil. The five artifacts collected from site 41MX95 include two prehistoric ceramic sherds and three pieces of unmodified debitage. Both of the ceramic sherds recovered from the site were undecorated body sherds. One was tempered with clay/grog; the other with clay/grog and bone. The former measured 6.0 mm thick; the latter 7.0 mm thick. The three pieces of unmodified debitage consist of one quartzite tertiary flake (9.5 to 12.5 mm) and two bifacial thinning flakes, one of chert and one of Ogallala quartzite (both between 6.3 and 9.5 mm).

In summary, site 41MX95 is a small, low density prehistoric site located on the edge of the uplands north of White Oak Creek. The two ceramic sherds recovered from the site date the occupation to the Early Ceramic or Caddoan period. Based on the small size of the site and its low artifact density, it is classified as a low intensity site. Despite this, the site appears to retain good contextual integrity and may have a good

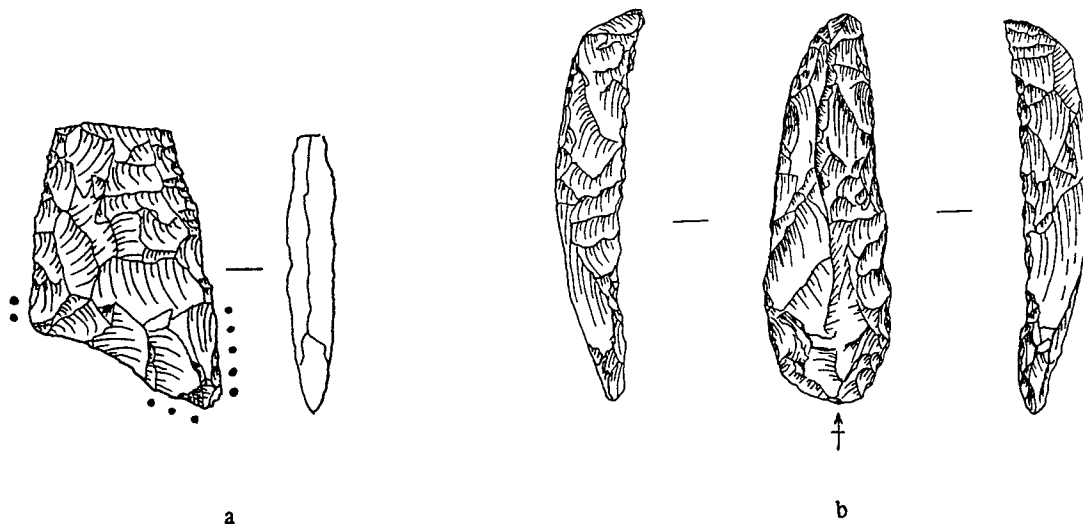


Figure 45. Lithic artifacts recovered from surface of site 41MX94: (a) fragmentary Meserve point; (b) limace (Scale 1:1).

research potential. Therefore, it is recommended that site 41MX95 be considered of unknown eligibility for inclusion in the NRHP and that it be protected pending test excavations designed to determine its NRHP status.

Site 41MX96

Site 41MX96 is a very small, moderate density prehistoric site located along a gently sloping ridge at the edge of the uplands north of White Oak Creek. It is at an elevation of 85 m amsl and occupies an area of about 260 m² (26-x-10 m). An unnamed, intermittent drainage approximately 300 m south of the site may be a relict channel of White Oak Creek. The soil in the area is mapped as being Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site area is covered by a moderately dense hardwood forest dominated by red oak, pin oak, elm, box elder, and dogwood trees, with a sparse understory of greenbriar, bamboo cane, and saplings. A thick leaf and grass mat covers the site, preventing good ground surface visibility. Disturbance to the site was limited to bioturbation and a small amount of erosion.

Twelve shovel tests were excavated in and around site 41MX96, with only two located within the boundary of the site (Figure 47). Seven artifacts were collected from subsurface testing, for an average density of 3.5 artifacts per onsite shovel test. The soil profile revealed through shovel testing began with a dark grayish brown to yellowish brown (10YR 4/2 to 10YR 5/4) silty sand 15 to 55 cm deep, underlain by a yellowish red to strong brown (5YR 4/4 to 7.5YR 5/6) sandy clay subsoil. An anomalous situation was found in Shovel Tests 2 and 7, where light yellowish brown and very pale brown (10YR 6/4 and 10YR 7/3) silty sand overlay the subsoil. A dark red (2.5YR 4/6) sandy clay was found at the surface in Shovel Test 11. Artifacts were recovered down to 50 cm in both onsite shovel tests. The seven artifacts recovered from site 41MX96 consisted of four prehistoric ceramic sherds and three pieces of unmodified lithic debitage. The ceramic sample includes three body sherds (two from the same vessel) and one rim sherd. The body sherds are all tempered with clay/grog, while the rim sherd is tempered with clay/grog and bone. The rim sherd has a straight, thinned rim with a rounded lip which is flattened on the exterior. Although it is small, the exterior

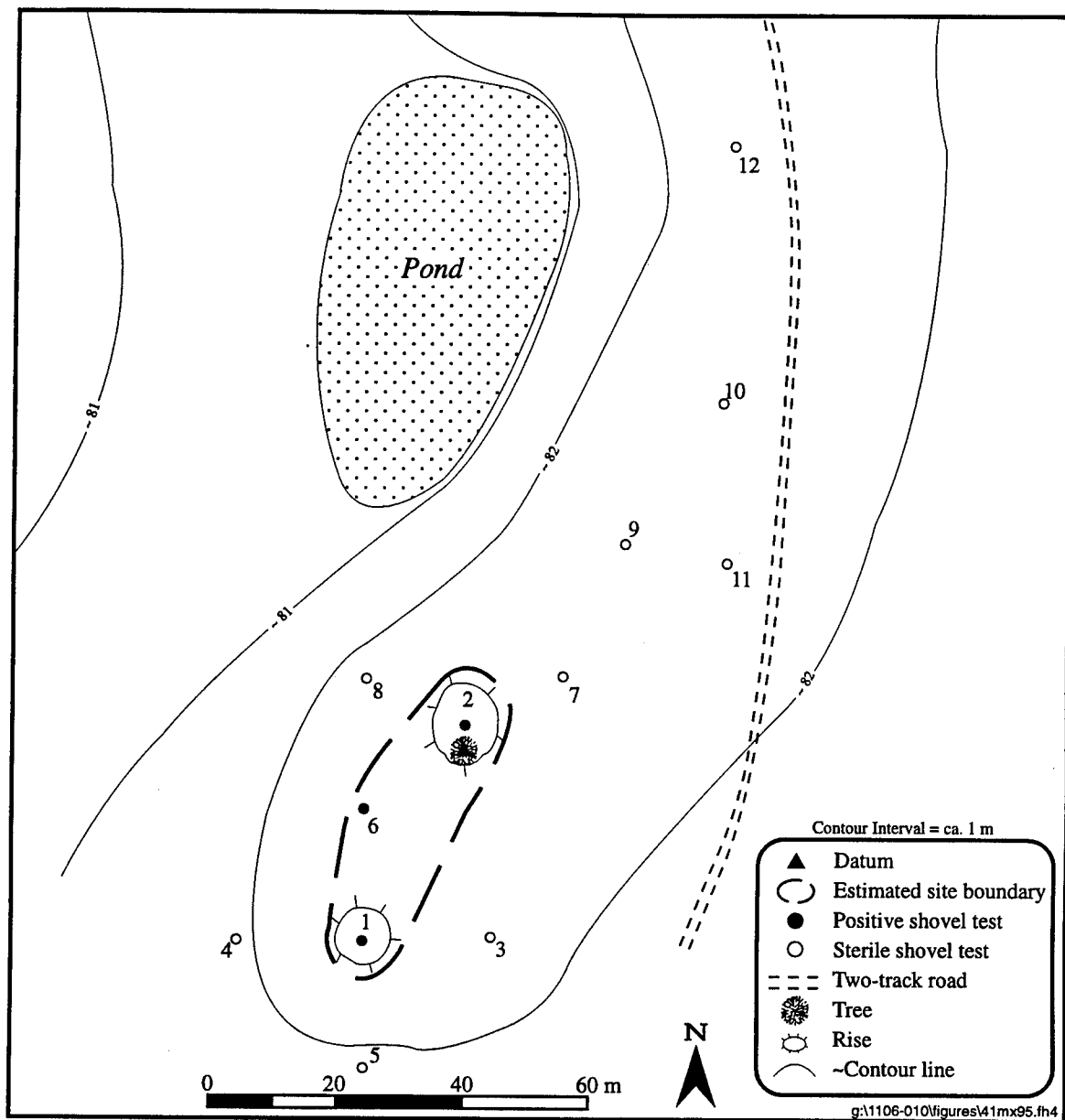


Figure 46. Pace and compass map of site 41MX95.

surface appears to be unsmoothed and is possibly decorated with fingernail punctations. This sherd has a maximum thickness of 6.0 mm, while the rim is only 4.0 mm thick. The two body sherds from the same vessel are small and worn, but they appear to be from a restricted-neck jar with at least one horizontal row of small punctations below the neck and a vertical applique ridge running down the body from the neck (Figure 48). The use of punctations around the neck and vertical applique ridges suggests the type McKinney Plain. These sherds both measure 5.0 mm thick. The final body sherd is undecorated and measures 6.0 mm thick. The unmodified lithic debitage consists of one chert secondary flake, one quartzite tertiary flake, and one chert piece of shatter. The tertiary flake and piece of shatter range from 6.3 to 9.5 mm in size, while the secondary flake is between 12.5 and 19 mm in size. Shovel Test 1 also produced two shell fragments,

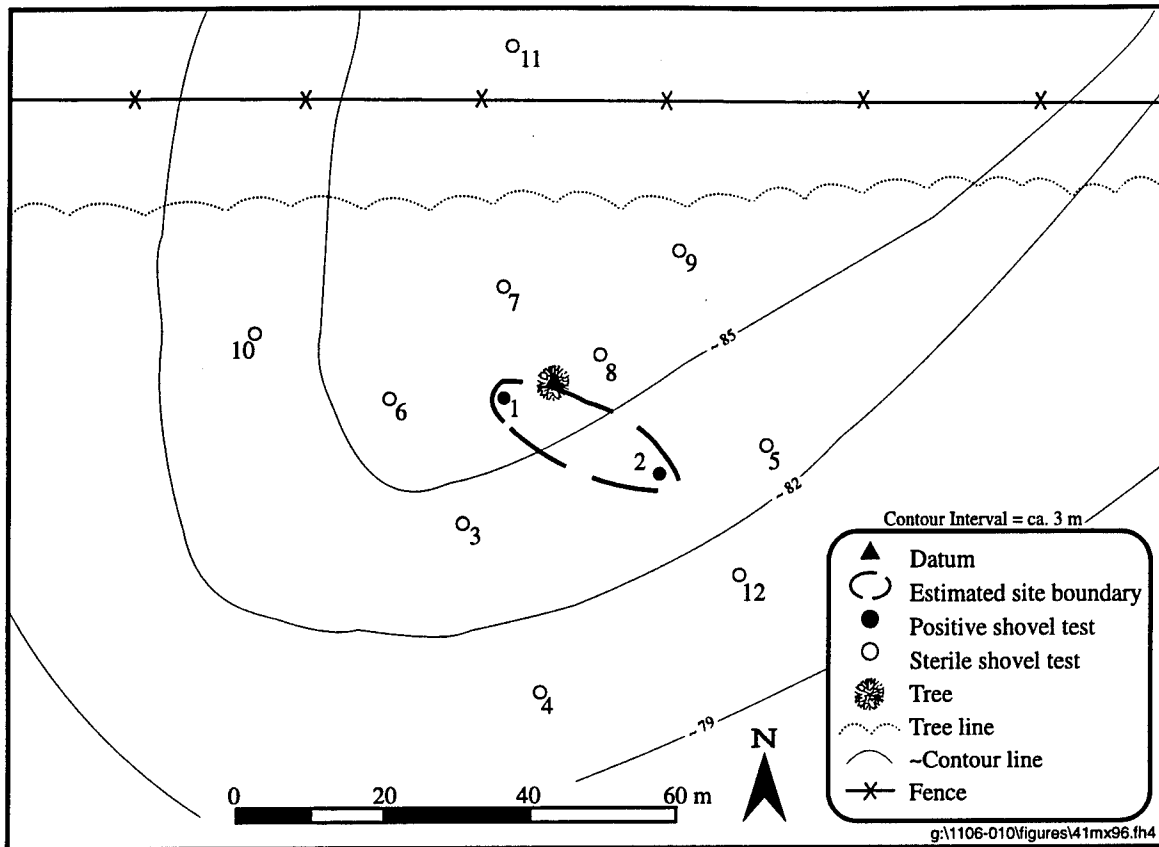


Figure 47. Pace and compass map of site 41MX96.

at 0 to 20 cm below the surface. This was the most productive shovel test for the site, since it contained every artifact except for the tertiary flake.

In summary, site 41MX96 is a very small, moderate density prehistoric site located on the edge of the uplands north of White Oak Creek. The presence of several sherds from a possible vessel of McKinney Plain suggests a Late Caddoan date. Despite a moderate subsurface artifact density, the site has been classified as a low intensity occupation based on its small size and the limited nature of the artifact sample recovered. Although the site is small, as presently defined, the contextual integrity is considered to be excellent, based on the recovery of several fragments of shell from one shovel test which suggests the possibility that faunal preservation may be better than is normally the case for such small sites. For these reasons, the site is felt to possibly have some research potential, and it is therefore recommended that site 41MX96 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41MX97

Site 41MX97 is a small, high density prehistoric site located on a narrow upland ridge. It is at an elevation of 80 m amsl and occupies approximately 1,200 m² (60-x-20 m). The nearest water source is an unnamed slough about 300 m south of the site. Soil in the area is mapped as being Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The ridge is heavily wooded with white, red, and pin oak; elm; ash; and hickory with a moderately dense understory. A portion of the site has been

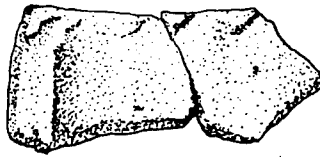


Figure 48. Punctated and applique sherd (possibly McKinney Plain) recovered from site 41MX96 (Shovel Test 1, Level 2) (Scale 1:1).

disturbed by heavy machinery, as evidenced by bulldozer spoil piles. A two-track road passes just a few meters to the north of the site. Bioturbation is also present. The disturbances, however, do not intrude into the densest part of the site.

Twelve shovel tests were excavated in and around site 41MX97, with six defining the boundary of the site (Figure 49). Thirty-three artifacts were collected from subsurface testing, for an average density of 5.5 artifacts per onsite shovel test. Artifacts were recovered down to 60 cm below surface in Shovel Test 12; to 80 cm below surface in Shovel Tests 1, 2, and 6; and to 100 cm in Shovel Test 3. The soil profile revealed through shovel testing began with a brown to yellowish brown (10YR 5/3 to 10YR 5/8) loamy sand up to 80 cm deep. Beneath this is a yellowish brown to light yellowish brown (10YR 5/8 to 10YR 6/4) clay.

The 33 artifacts collected from site 41MX97 include 16 prehistoric ceramic sherds, one fragment of baked clay, and 16 pieces of unmodified lithic debitage. The ceramic sample from this site consists entirely of body sherds, all tempered with clay/grog. Sherd thickness ranges from 4.0 mm to 8.0 mm, with a mean of 6.1 ± 1.1 mm and a mode of 5.0 mm. The majority of the sherds ($n=11$) are undecorated (although one appears to be unsmoothed), but one sherd is brushed, one (possibly two) are neck banded, and three are engraved. The single brushed sherd cannot be identified as to type. The neck banded sherds may belong to vessels of the type Nash Neck Banded. Of the three engraved sherds, two are from the same vessel, a carinated bowl with possibly a series of widely separated, hachured triangles above the shoulder. It may be related to Hempstead Engraved. The third engraved sherd is small, but shows part of a cross-hatched fill triangle with concave sides. It cannot be typed. The lithic debitage consists of four secondary flakes, three tertiary flakes, eight bifacial thinning flakes, and one piece of angular shatter. Raw material types are chert ($n=7$), quartzite ($n=4$), Ogallala quartzite ($n=2$), silicified wood ($n=2$), and mudstone ($n=1$). These artifacts vary in size, with one less than 6.3 mm in size, six between 6.3 and 9.5 mm, six between 9.5 and 12.5 mm, and three between 12.5 and 19 mm in size. The piece of baked clay is unimpressed and weighs 1.5 grams. In addition to the artifactual material, two bone fragments were collected from the upper 20 cm of Shovel Test 2. One is an angularly fractured, lightly weathered fragment from a medium to large mammal, most likely deer; the other is a diaphyseal fragment of a femur from a medium-sized Artiodactyl, almost certainly deer. This fragment was also lightly weathered but exhibited spiral fracturing.

In summary, site 41MX97 is a small, high density prehistoric site located on a narrow upland ridge. The ceramic sample, which contains several engraved sherds (cf. Hempstead Engraved), several neck banded sherds (cf. Nash Neck Banded), and one brushed sherd, indicates a Late Caddoan date. Based on the high subsurface artifact density and the variety of material collected, the site is classified as a high intensity occupation. Despite some disturbance, the site is judged to have good contextual integrity. This, coupled

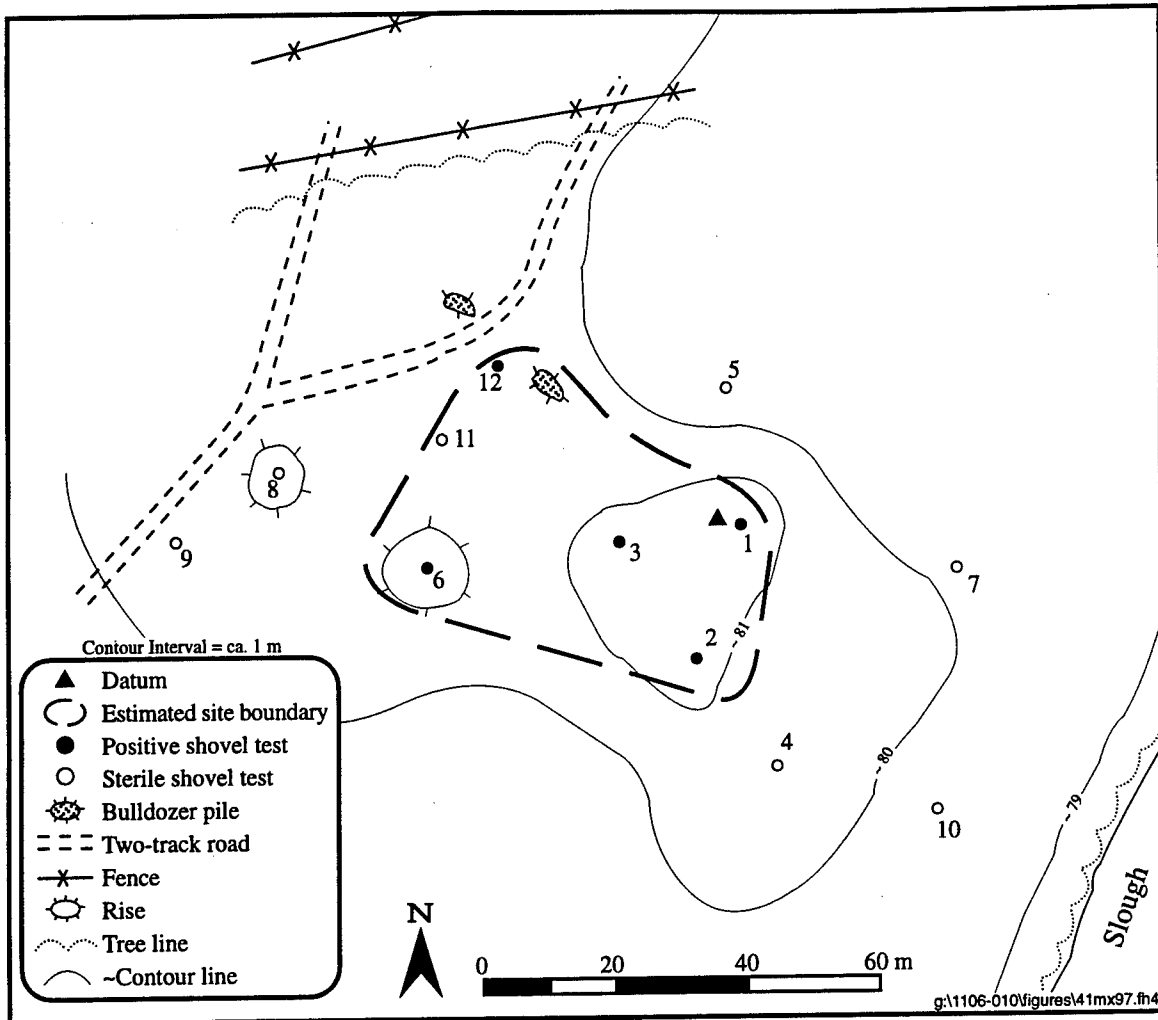


Figure 49. Pace and compass map of site 41MX97.

with the presence of faunal remains, suggests that the site has excellent research potential. Therefore, it is recommended that site 41MX97 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41MX98

Site 41MX98 is a medium-sized, high density prehistoric site located on a series of natural rises on an upland bench which extends southeastward into the floodplain north of White Oak Creek. The site is at an elevation of 80 m amsl and covers about 3,000 m² (100-x-35 m). An unnamed, intermittent drainage that appears to be a former channel of White Oak Creek is about 50 m southwest of the site. Soil in the area is mapped as Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is covered with a moderately dense hardwood forest and dense understory. Vegetation observed on the site included red oak, white oak, sweetgum, hickory, hackberry, dogwood, greenbriar, poison ivy, and mixed grasses. A dense mat of leaves and grass covers the site, preventing good ground surface visibility. A very limited amount of bioturbation was observed at the site. Contextual integrity is believed to be good.

Sixteen shovel tests were excavated in and around the site, seven of which were within the site boundary (Figure 50). Thirty-six artifacts were recovered during subsurface shovel testing, for an average of 5.1 artifacts per onsite shovel test. Artifacts were recovered down to 80 cm below surface in Shovel Tests 1, 3, and 4, and to 100 cm in Shovel Test 10. One third of the artifacts collected (n=12) came from just one unit, Shovel Test 4. Shovel testing revealed a generalized soil profile consisting of yellowish brown to brownish yellow (10YR 5/4 to 10YR 6/6) silt loam, over a meter deep in the units on rises and in a few of the off-rise units as well. The other off-rise units contained a shallower layer of the same silty loam (15 cm thick) overlying a yellowish red (5YR 4/6) silty clay.

Five classes of artifacts are represented in the sample collected from site 41MX98. The 36 artifacts sort out into the following classes: finished bifacial tools (n=1), unfinished bifaces (n=1), unmodified lithic debitage (n=29), burned rock (n=1), and baked clay (n=4). The finished bifacial tool is the proximal half of a possible Palmillas dart point. It is made of Ogallala quartzite; measures 24 mm long, 23 mm wide, and 8 mm thick; and weighs 3.3 grams. The point has been broken by a fracture, nearly perpendicular to the straight lateral edges. The shoulders are prominent and unbarbed. The small rounded stem has expanding edges and convex base, producing a bulbous appearance for the complete stem. The unidentifiable, unfinished biface fragment is made of chert; measures 14 mm long, 14 mm wide, and 6 mm thick; and weighs .8 gram. No further information could be obtained from this small fragment. The sample of unmodified debitage (n=29) consists of four primary flakes, eight secondary flakes, four tertiary flakes, 12 bifacial thinning flakes, and one piece of shatter. Raw materials include quartzite (n=12), chert (n=10), Ogallala quartzite (n=5), silicified wood (n=1), and sandstone (n=1). The debitage varies in size, with three less than 6.3 mm in size, 10 ranging from 6.3 to 9.5 mm, seven from 9.5 to 12.5 mm, seven from 12.5 to 19 mm, and two pieces from 19 to 25 mm in size. The single piece of burned rock consists of a cobble of quartzite weighing 5.6 grams. Three pieces of baked clay were recovered from between 60 to 80 cm down in Shovel Test 1, and a fourth fragment from the same depth in Shovel Test 10. All of these pieces were unimpressed and together weighed 51.7 grams.

In summary, site 41MX98 is a medium-sized, high density prehistoric site located on a series of natural rises along an upland bench north of White Oak Creek. The presence of a dart point fragment identified as a Palmillas point conservatively suggests a Late Archaic period date. Based on the size and subsurface density of the site, it has been classified as a high intensity occupation. The apparent date of the occupation, the quantity and variety of artifacts recovered, and the good contextual integrity of the site give it a good research potential. Therefore, it is recommended that site 41MX98 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Titus County

Site 41TT80

Site 41TT80 is a very large, moderate density, previously recorded prehistoric site located on an upland ridge and the adjacent low terraces north of White Oak Creek. It was originally recorded in 1974 as a "Paleo-Indian to Neo-American village and camp." Artifacts collected and observed at that time included "flakes, pottery sherds, dart and arrow points, paleo-like dart points, manos, and metates" (Bell n.d.). The portion of the site within the present survey area is at an elevation of 88 m amsl and covers about 35,000 m² (200-x-175 m). The nearest water sources are White Oak Creek, about 25 m west of the site, and Zelith Lake, which is about 50 m south. Zelith Lake appears to occupy either an ancient channel of White Oak Creek or a former meander of the present channel. The site area is mapped as being at the boundary between Estes clay loam, frequently flooded, and Woodtell fine sandy loam, 2 to 5 percent slopes (for descriptions of these soils, see Chapter 2). Moderate disturbance was noted at the site. The site is entirely located in a pasture

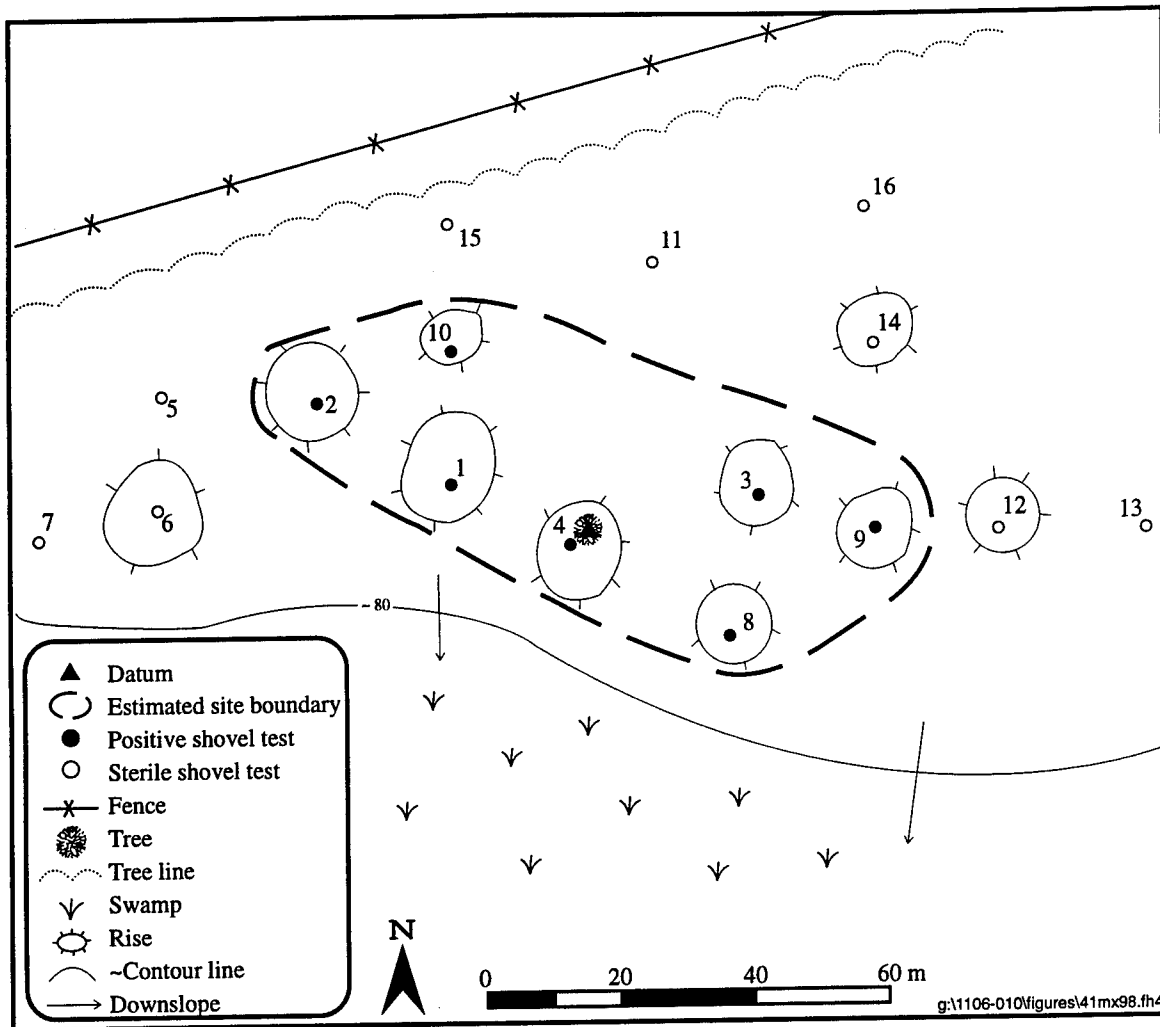


Figure 50. Pace and compass map of site 41MX98.

that may have been cleared by heavy machinery. An old county road crosses the site, causing extensive disturbance from its construction and from subsequent erosion along it. A fence has also impacted the site. Large areas of the site have also been impacted through bioturbation, most notably, the very deep rooting areas of feral hogs which are widespread on the southern slopes. These areas were beginning to erode at the time of recording. The contextual integrity of the site is thus judged to be fair.

The shovel testing undertaken at site 41TT80 concentrated on the relatively flat and undisturbed portions of the site, avoiding areas of disturbance and the steeper slopes in the central portion of the site area. As a result of this, only five shovel tests were excavated in and around the site (Figure 51). Thus, the site area was primarily identified on the basis of surface scatters of unmodified lithic debitage and ground stone along the two-track road and in the disturbed areas along the ridgetop. One surface flake was collected. Of the five shovel tests excavated, only two were within the site limits. Six artifacts were collected from these shovel tests, for an average density of 3.0 artifacts per onsite shovel test; however, considering the large distance between these units, this figure may not be representative of the entire site. The generalized soil profile observed during shovel testing consisted of a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/8) loamy sand, 30 to 40 cm deep, overlying the subsoil. Artifacts were recovered down to 40

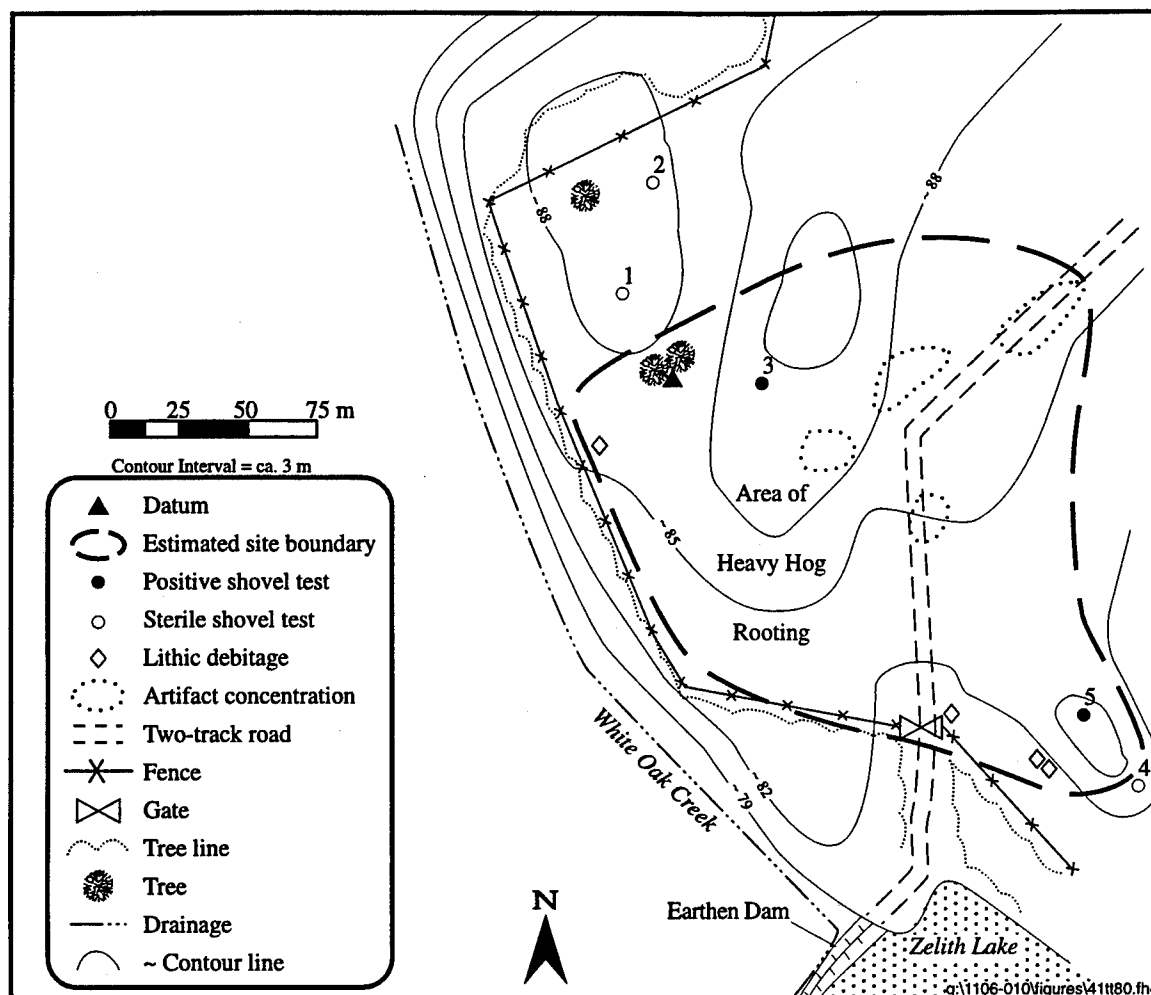


Figure 51. Pace and compass map of site 41TT80.

cm beneath the surface. Materials observed but not collected from the surface include more than 30 pieces of quartzite and chert unmodified debitage, along with quartzite ground stone fragments.

Only six artifacts were recovered from subsurface shovel testing at site 41TT80, all unmodified debitage. They consist of one secondary flake, one tertiary flake, two bifacial thinning flakes, and two pieces of shatter. Raw material types are chert ($n=2$), Ogallala quartzite ($n=2$), and quartzite ($n=2$). The artifacts varied in size, with two less than 6.3 mm in size, two from 6.3 to 9.5 mm, and two from 12.5 to 19 mm in size. The single surface artifact collected was an unmodified chert bifacial thinning flake, between 12.5 and 19 mm in size.

In summary, site 41TT80 appears to be a very large, moderate density prehistoric site located on an upland ridge and the adjacent low terraces above White Oak Creek. Although the current investigations recovered no diagnostic material, earlier recording of the site reported possible Paleo-Indian dart points, unspecified dart and arrow points, and ceramic sherds, suggesting that the site area may contain possible Paleo-Indian, Archaic, and Early Ceramic - Caddoan period occupations. Given its moderate subsurface artifact density, and assuming that the site size is a reflection of actual aboriginal occupation and not erosion, site 41TT80 has been classified as a high intensity occupation. Despite its fair contextual integrity, shovel testing indicates

some areas of moderate subsurface artifact density remain, and it is felt that the site may still have some research potential. Therefore, it is recommended that site 41TT80 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT82

Site 41TT82 is a small, multicomponent prehistoric and historic period site, located on the end of a narrow upland ridge and the adjacent downslope terraces south of White Lake. The site was originally recorded in 1974 as “primarily Archaic” and “possible Paleo and Neo-American” (Bell n.d.). Artifacts observed at that time and believed to be associated with the site consisted “primarily of dart points” and included “very little pottery and arrow points.” It was speculated that the area of the site included all of a natural mound at the base of the ridge, the top of the ridge, and the area between the two. Although the present survey shovel tested both the ridge and the natural rise below it, no subsurface artifacts were encountered, although material was noted on the surface. The site is located at an elevation of 82 m amsl. The prehistoric component covers approximately 2,400 m² (80-x-30 m) while the historic artifact scatter, apparently associated with a hunting cabin, covers about 289 m² (17-x-17 m) within the prehistoric site. The nearest water source is White Lake, which forms the northern border of the site. White Lake appears to be part of a former channel of White Oak Creek. The site area is mapped as being at the boundary between Woodtell fine sandy loam, 2 to 5 percent slopes, and Woodtell fine sandy loam, 5 to 20 percent slopes (for descriptions of these soils, see Chapter 2). Vegetation in the area consists of scattered pine; red, pin, and white oak; and a thin underbrush of greenbrier and mixed grasses. All artifacts were observed in disturbed areas, including a bladed dirt road leading to what appeared to be a temporary hunting camp and cabin located on the site, the mechanically cleared area around the hunting cabin, and the eroded slopes along the edge of White Lake. Contextual integrity is judged to be fair.

Shovel testing at site 41TT82 was concentrated in the relatively intact, wooded area southeast of the cleared area surrounding the modern hunting cabin. Twelve shovel tests were excavated in this area, but all proved to be sterile (Figure 52). Both historic and prehistoric artifacts were found thinly, but evenly, distributed across the surface of the site along the road, the cleared area around the cabin, and in the eroded areas along the edge of the terrace. Shovel testing exposed a soil profile beginning with a very pale brown (10YR 7/3) sandy loam, not more than 10 cm deep, underlain by a yellowish brown (10YR 5/6) clay subsoil. The only artifact collected from the surface of site 41TT82 was a prehistoric ceramic sherd. This was an undecorated and eroded body sherd, clay/grog tempered and 7.0 mm thick. Other prehistoric artifacts observed but not collected from the surface included over 30 chert and quartzite flakes; a chert scraper; a chert point barb fragment, presumably from an arrow; two dart point-size quartzite biface fragments; and a quartzite ground stone fragment. None of the historic artifacts observed on the surface of site 41TT82 were collected. They included a small scatter of whiteware, stoneware, and purple glass (presumably manganese solarized glass; 1880-1920). These artifacts appeared to be associated with a temporary hunting camp and cabin, and can be attributed to the sporadic use of the area for recreational purposes, possibly over a number of years.

In summary, site 41TT82, as it was identified by the present survey, is a small multicomponent prehistoric and historic site defined on the basis of surface artifacts alone. Prehistoric artifacts dating to the Archaic and Early Ceramic - Caddoan periods were reported from the site in 1974, while the present survey noted the presence of an historic artifact scatter probably associated with a late twentieth century hunting cabin. As it exists today, it is a small site with a low artifact density, resulting in its classification as a low intensity occupation. However, the fact that five prehistoric artifact classes were observed on the site (i.e., biface, uniface, unmodified debitage, ground stone, and prehistoric ceramic) suggests that a more substantial residential site may have been present at one time. Since the contextual integrity of the site is judged to be fair and the prehistoric surface artifact sample is quite varied, the site may still retain a good research

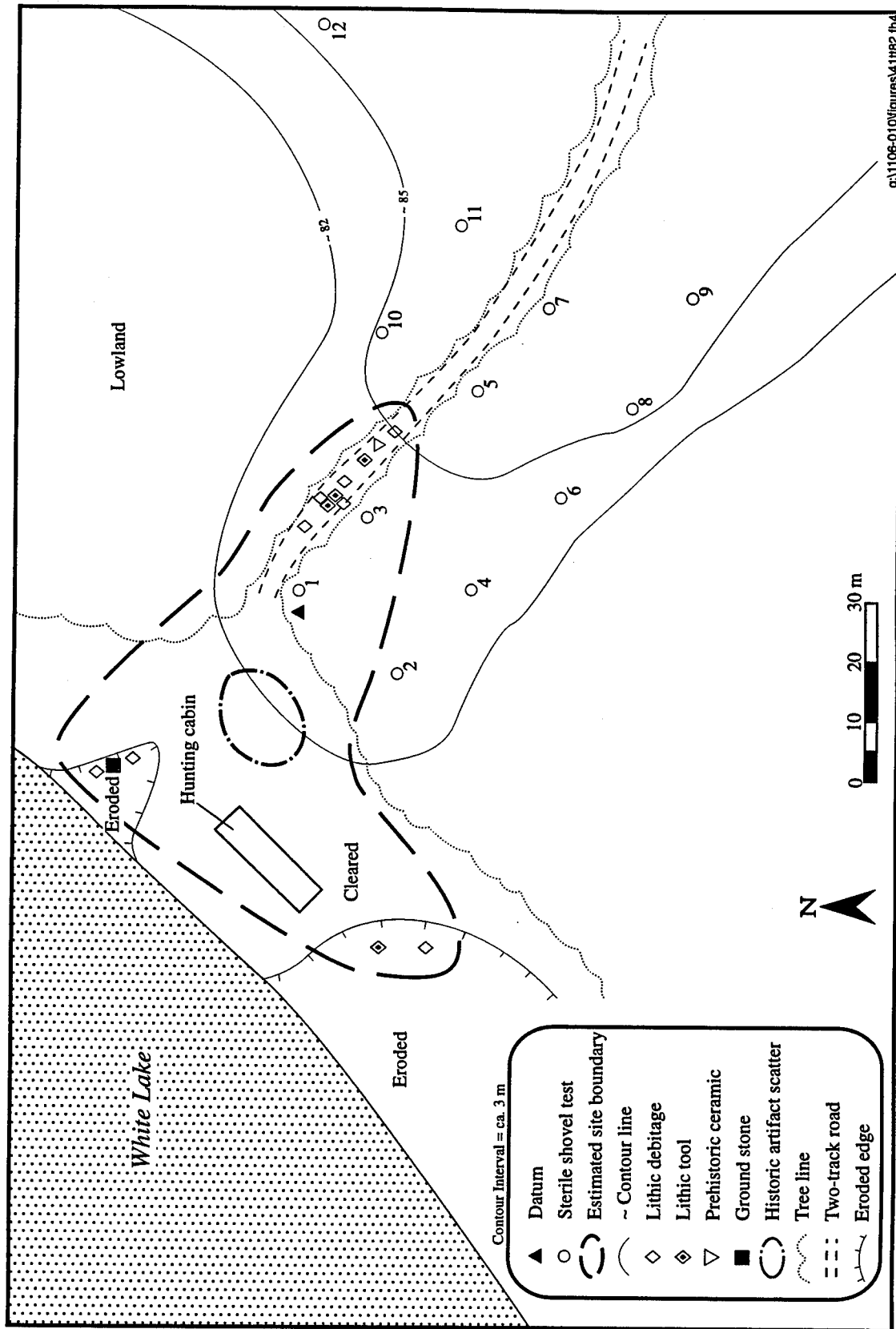


Figure 52. Pace and compass map of site 41TT82.

potential despite the failure to locate any subsurface archeological deposits at the time of recording. Therefore, it is recommended that site 41TT82 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT661

Site 41TT661 is a multicomponent site composed of a small, low density prehistoric occupation adjacent to a small, low density historical component. The site is located on a low terrace at the western edge of the White Oak Creek floodplain. It is at an elevation of 81 m amsl. The prehistoric component covers approximately 500 m² (25-x-20 m), while the historical component covers about 875 m² (35-x-25 m). These two components do not appear to overlap. The nearest water source is Horse Creek, approximately 40 m to the north. The soil in this location is mapped as being Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). Vegetation observed at the site included ash, red oak, pin oak, box elder, sweetgum, and elm with an understory of ragweed, grapevine, and greenbriar, along with mixed grass and weeds. The site is in an open field covered with a short, dense carpet of grass. A fenceline and a bladed dirt road pass through the site. The road leads to a collapsed bridge which once crossed Horse Creek. In addition, the area has probably been cleared of vegetation by heavy machinery. Bioturbation was also noted on the site. Given these impacts, the contextual integrity of the site is considered to be fair.

Eight shovel tests were excavated in and around site 41TT661, producing a total of six artifacts from this multicomponent site (Figure 53). Two artifacts were collected from the two shovel tests which defined the prehistoric component (Shovel Tests 1 and 8), giving an average subsurface density of 1.0 artifact per onsite shovel test. Four historic artifacts recovered from the two shovel tests on the historic component (Shovel Tests 2 and 6) give a subsurface artifact density of 2.0 artifacts per shovel test. These artifacts were recovered down to 60 cm below the surface. The generalized soil profile noted during subsurface shovel testing began with a dark brown to yellowish brown (10YR 3/3 to 10YR 5/4) sandy loam, 5 to 85 cm deep. This is underlain by a mixed strong brown, light gray, and yellow (7.5YR 5/6, 7.5YR 7/0, and 10YR 7/6) silty clay. The two artifacts recovered from the prehistoric component at site 41TT661 are both pieces of unmodified lithic debitage. They are both bifacial thinning flakes measuring less than 6.3 mm in size. One of the flakes is chert and the other is Ogallala quartzite. The four historic artifacts collected from the site include three architectural items and one activities item. The architectural items include two wire nails (16d and 60d; post-1880) and a machine-made brick fragment (post-1890). The activities-related artifact was a piece of cast iron, possible from a bracket.

In summary, site 41TT661 is a small, low density multicomponent site consisting of both prehistoric and historical material. The historical component at the site probably dates to the twentieth century, while the date of the prehistoric component is unknown. Based on the small size and low density of both components, both are classified as low intensity occupations. Despite the fair contextual integrity observed at the site, neither occupation appears to have been intensive enough to offer much research potential. Therefore, it is recommended that site 41TT661 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41TT662

Site 41TT662 is a medium-sized, low density prehistoric site located on an upland terrace just south of Horse Creek. The site is at an elevation of 87 m amsl and covers an area of approximately 4,500 m² (90-x-50 m). The nearest water source is Horse Creek, approximately 50 m north of the site. The site is mapped as being at the boundary of Estes clay loam, frequently flooded, and Woodtell fine sandy loam, 5 to 20 percent slopes

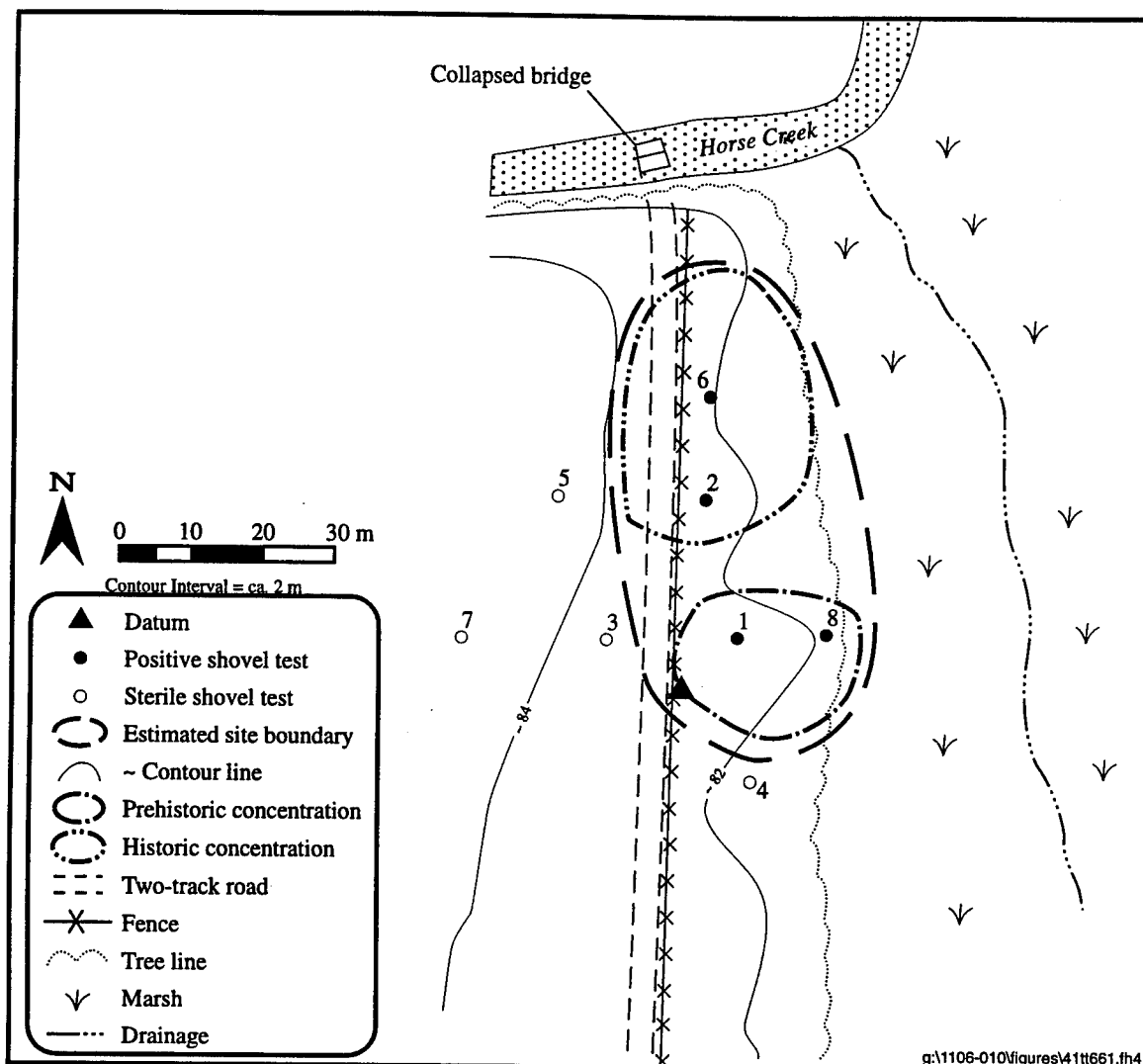


Figure 53. Pace and compass map of site 41TT661.

(for descriptions of these soils, see Chapter 2). The site is partially in an open field covered with mixed grasses and partially in a lightly wooded area of red oak, white oak, pin oak, elm, hickory, honey locust, and ash. A dirt two-track road passes through the site. Some small areas of sheet erosion are also located on the site. Contextual integrity of the site is judged to be good.

Thirteen shovel tests were excavated in and around site 41TT662, with eight shovel tests within the site boundary (Figure 54). Twelve artifacts were collected from the site, for an average density of 1.5 artifacts per onsite shovel test. The generalized soil profile observed during shovel testing consisted of a dark brown to brown (10YR 3/3 to 10YR 4/3) sandy loam 10 to 20 cm in depth. Below this in some units was a yellowish brown (10YR 5/4 to 10YR 5/6) sandy loam 20 to 60 cm thick. A yellowish brown to light yellowish brown (10YR 5/4 to 10YR 6/6) clay was encountered in most tests. In Shovel Test 9, a reddish brown (5YR 5/4) clay subsoil was encountered. Artifacts were recovered down to 60 cm below surface in Shovel Tests 2 and 10. The artifact sample from site 41TT662 consists of one prehistoric ceramic sherd,

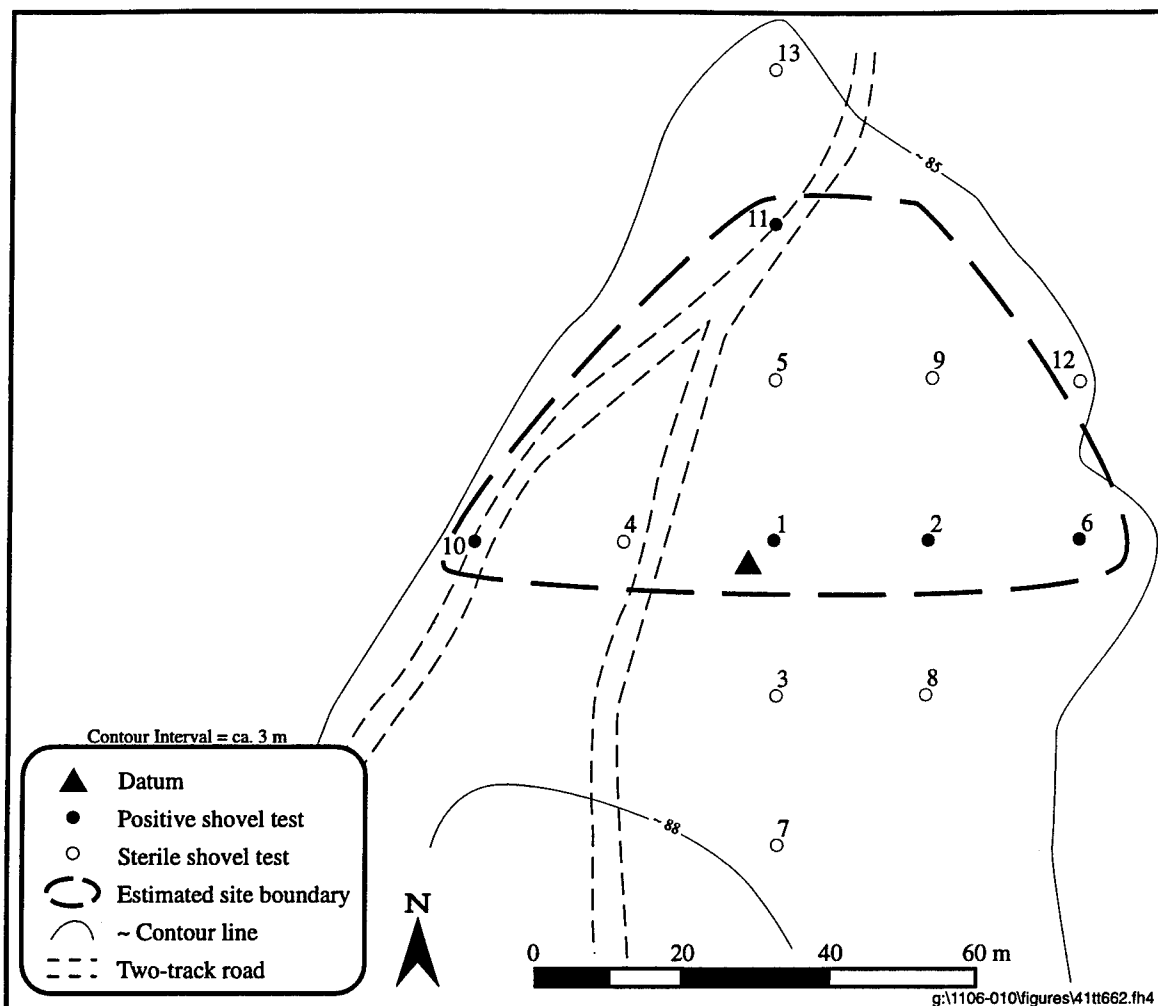


Figure 54. Pace and compass map of site 41TT662.

one utilized flake, and 10 pieces of unmodified lithic debitage. The single ceramic is an eroded, undecorated body sherd with clay/grog tempering. It is 8.0 mm thick. The piece of utilized debitage consists of an Ogallala quartzite secondary flake (6.3 to 9.5 mm), with use-wear on the transverse, dorsal distal edge. The unmodified debitage consists of two tertiary flakes, four bifacial thinning flakes, three pieces of angular shatter, and one thin flake fragment. Raw material includes Ogallala quartzite (n=4), chert (n=3), quartzite (n=2), and silicified wood (n=1). The lithic debitage tends to be small, with one flake less than 6.3 mm in size, five between 6.3 and 9.5 mm, one between 9.5 and 12.5 mm, and three artifacts between 12.5 and 19 mm in size.

In summary, site 41TT662 is a medium-sized, low density prehistoric site located on an upland terrace immediately south of Horse Creek. The presence of a ceramic sherd on the site indicates an Early Ceramic or Caddoan period date. Despite its medium size, site 41TT662 has been classified as a low intensity occupation, given its low subsurface artifact density and the limited nature of the artifact sample recovered. Despite its low overall artifact density, the site is judged to have good contextual integrity and it may retain good research potential. Therefore, it is recommended that site 41TT662 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT663

Site 41TT663 is a very large, high density prehistoric site located on an upland ridge above Horse Creek. The site is at an elevation of 91 m amsl and occupies approximately 20,625 m² (275-x-75 m). The nearest water source is Horse Creek, which is about 75 m north of the site. The site area is mapped as being at the boundary between Woodtell fine sandy loam, 5 to 20 percent slopes, and Freestone fine sandy loam, 1 to 3 percent slopes (for descriptions of these soils, see Chapter 2). The site is in an open field covered with mixed grasses and weeds, with the occasional lone tree and thickets of red oak, post oak, pine, ash, and locust. The only disturbances noted were bioturbation and an old two-track road which passes through the site. Contextual integrity of the site is judged to be good.

Nineteen shovel tests were excavated in and around site 41TT663, 15 of which were within the defined site boundary (Figure 55). One-hundred-and-sixty (160) artifacts were collected from the shovel tests, for an average subsurface density of 10.7 artifacts per onsite shovel test. Over half of these artifacts (n=91; 56.9 percent) were recovered from Shovel Test 9. Artifacts were recovered as deep as 80 cm below surface in Shovel Tests 1 and 9. The generalized soil profile noted during shovel testing began with a very dark grayish brown to dark yellowish brown (10YR 3/2 to 10YR 4/3) silty loam, 10 to 40 cm thick, underlain in some units by a yellowish brown to light yellowish brown (10YR 5/4 to 10YR 6/4) silty loam, 20 to 40 cm thick. This in turn was underlain by a strong brown to yellowish brown (7.5YR 4/4 to 10YR 5/6) clay subsoil. However, in Shovel Tests 3, 4, 7, and 18, a reddish brown (5YR 4/4 to 5YR 5/4) clay was encountered at 15 to 20 cm below surface.

As noted above, 160 artifacts were collected from subsurface shovel testing at site 41TT663. Seven artifact classes are represented in this sample, including prehistoric ceramics (n=5), baked clay (n=2), finished bifacial tools (n=5), unfinished bifaces (n=2), utilized flakes (n=1), unmodified lithic debitage (n=139), and burned rock (n=6). The sample of ceramic sherds consists of five small sherds from four vessels (two sherds are from the same vessel). All are undecorated body sherds and all are tempered with clay/grog. Sherd thicknesses are 4.0 mm (n=1), 5.0 mm (n=1), and 7.0 mm (n=3, two from same vessel). Counting the two sherds from the same vessel together, mean thickness is 5.8 ± 1.3 mm (n=4).

The five finished bifacial tools recovered during shovel testing include three nearly complete Friley arrow points and two dart point-sized stem fragments. The first point was recovered from Shovel Test 9 (Figure 56a). It is made of Ogallala quartzite and has been burned. It measures 16 mm long, 12 mm wide, and 3 mm thick, and weighs .5 gram. This arrow point is missing one of its prominent, barbed shoulders. The remaining shoulder recurves slightly toward the tip. The stem is rounded. The other two Friley arrow points were both found in Shovel Test 17. Both of these are made of Ogallala quartzite, although they are of different colors. The first point was recovered from the upper 20 cm of the shovel test. It measures 19 mm long, 12 mm wide, and 3 mm thick, and weighs .5 gram (Figure 56b). Like the previously described point, it is missing one of its prominently barbed shoulders, while the remaining shoulder is missing its complete barb. Its blade edges are straight until the laterally projecting shoulders are reached. The stem is square with a straight base. The third Friley point was collected from 20 to 40 cm beneath the surface in Shovel Test 17. It measures 18 mm long, 13 mm wide, and 3 mm thick, and weighs .5 gram (Figure 56c). This arrow point is also missing one of its prominently barbed shoulders, which has been removed almost flush with one of the straight lateral blade edges. The intact shoulder has a delicate barb that recurves and projects toward the tip of the point. The stem expands slightly while the base is fairly straight. The remaining two finished bifacial tools are both base/stem fragments. Although both are of the size expected on a dart point, the fragments are so small and inconclusive in shape and degree of completion that this determination cannot be made with any measure of assurance. One is made of chert; measures 14 mm long, 10 mm wide, and 5 mm thick; and weighs .5 gram. The assumed base is straight, while one surface has flaking only along the straight stem edges. The fragment is plano-convex in cross-section. The other base/stem fragment is made

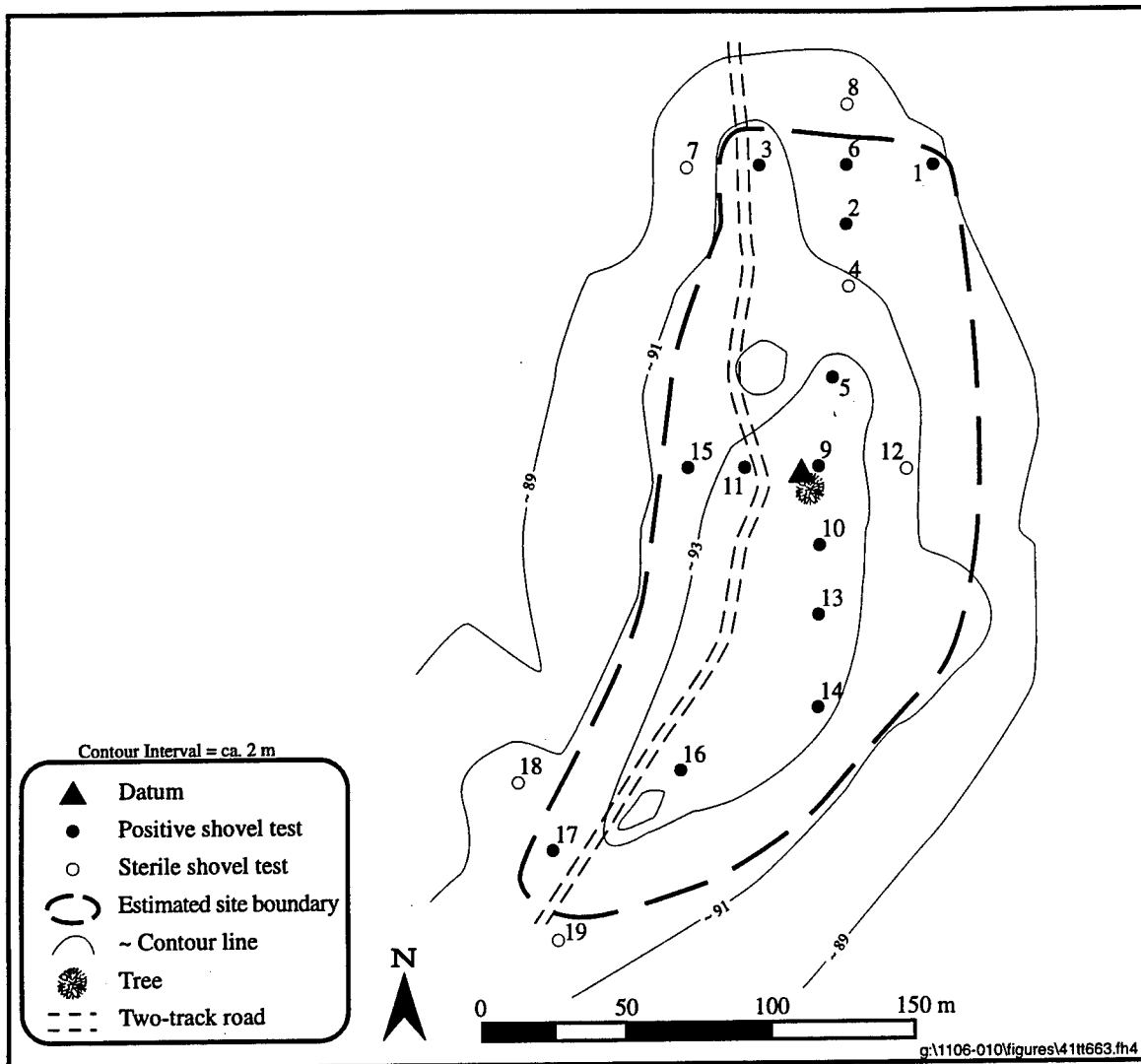


Figure 55. Pace and compass map of site 41TT663.

of Ogallala quartzite; measures 10 mm long, 11 mm wide, and 6 mm thick; and weighs .7 gram. It is biconvex in cross-section and has expanding stem edges and a slightly convex base.

Both of the unfinished bifaces were found in Shovel Test 9 and are early aborted biface fragments, one of Ogallala quartzite and one of quartzite. The Ogallala quartzite artifact measures 30 mm long, 22 mm wide, and 7 mm thick, and weighs 3.6 grams. It is roughly triangular in shape with one snapped surface opposite two edges. The fragment could have just as easily been classified as a thinned biface or knife. The quartzite unfinished biface fragment measures 16 mm long, 22 mm wide, and 5 mm thick, and weighs 1.4 grams. It is the shape of a disc that has been broken in half and is plano-convex in cross section. The utilized flake is also from Shovel Test 9. It is a silicified wood tertiary flake measuring 27 mm long, 19 mm wide, and 6 mm thick, with a weight of 2.0 grams. This triangular flake has two edges with use-wear and the third with a snapped edge. The sample of unmodified lithic debitage (n=139) includes nine primary flakes, 39 secondary flakes, 60 tertiary flakes, 27 bifacial thinning flakes, and four pieces of nondiagnostic shatter.

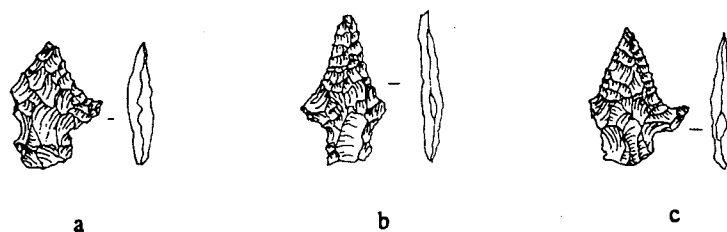


Figure 56. Friley arrow points recovered from site 41TT663: (a) Shovel Test 9, Level 2; (b) Shovel Test 17, Level 1; (c) Shovel Test 17, Level 2 (Scale 1:1).

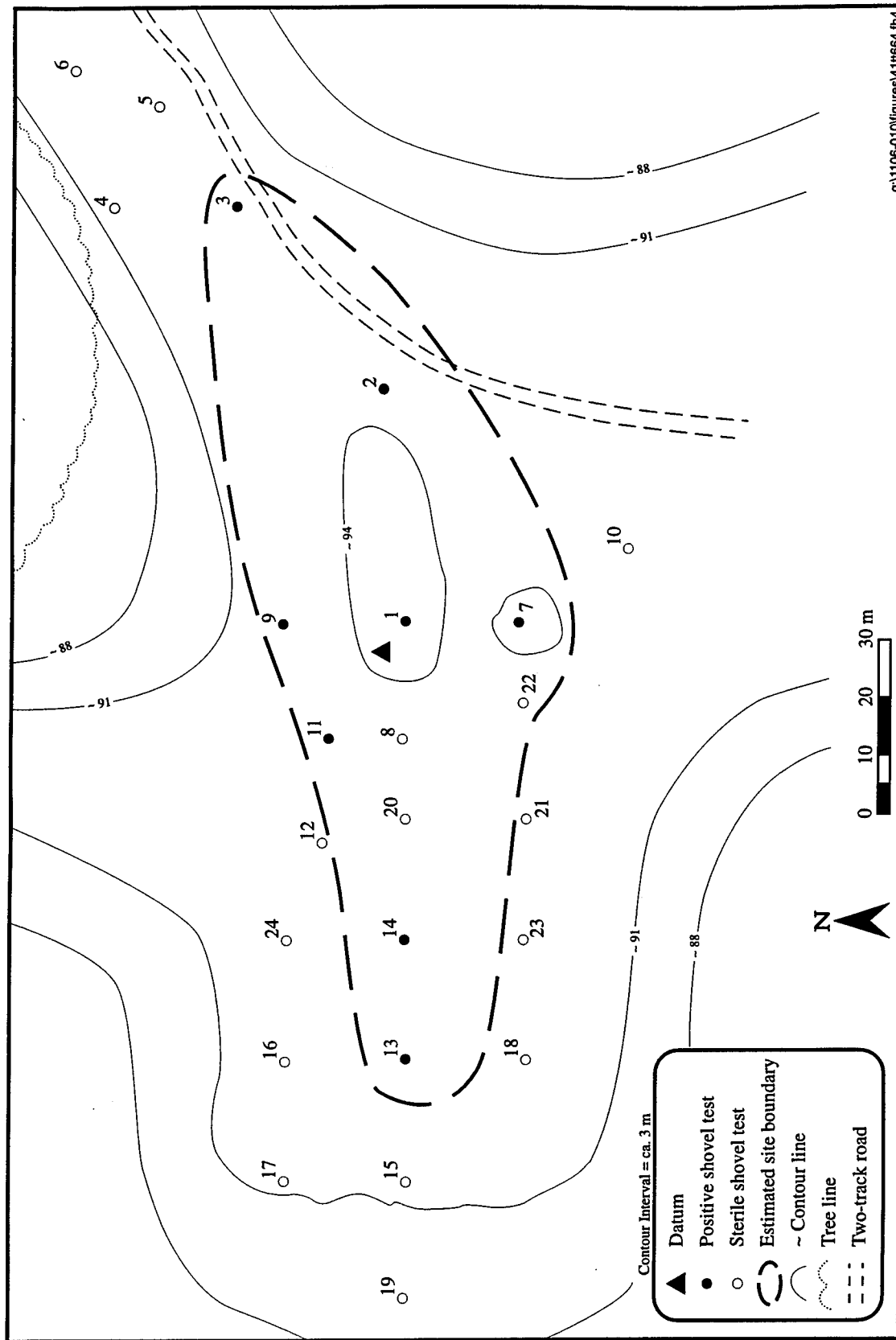
Raw material types represented among the lithic debitage include quartzite ($n=71$), Ogallala quartzite ($n=41$), chert ($n=18$), petrified wood ($n=5$), silicified wood ($n=3$), and hematite ($n=1$). The flakes vary in size, with 32 less than 6.3 mm in size, 55 between 6.3 and 9.5 mm, 30 between 9.5 and 12.5 mm, 20 between 12.5 and 19 mm, and two between 19 and 25 mm in size. All six pieces of burned rock collected were quartzite and have a combined weight of 127.8 grams. The two pieces of baked clay are unimpressed and have a combined weight of 1.8 grams.

In summary, site 41TT663 is a very large, high density prehistoric site located on an upland ridge above Horse Creek, south of White Oak Creek. The three Friley points recovered from the site suggest an occupation dating to the Early Caddoan period. Elsewhere within the White Oak Creek drainage, at site 41CS151 (Cliff and Hunt 1995:146), a primary midden containing Friley arrow points was radiocarbon dated to 890 ± 60 B.P. (cal A.D. 1020-1270). This same component also yielded an artifact sample with a very low frequency of ceramic material, as is the case with site 41TT663. The site has been classified as a high intensity occupation, based on the very large size of the site and the high artifact density. This, combined with the apparent good contextual integrity of the site, gives it an excellent research potential. It is therefore recommended that site 41TT663 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT664

Site 41TT664 is a large, moderate density prehistoric site located on an upland ridge south of Horse Creek. It is at an elevation of 91 m amsl and covers about 6,400 m² (160-x-40 m). Site 41TT663 is 90 m to the northeast. The nearest water source is a spring about 50 m north of the site in a dissected area between ridgetops. The site is mapped as being at the boundary between Woodtell fine sandy loam, 5 to 20 percent slopes, and Freestone fine sandy loam, 1 to 3 percent slopes (for a description of these soils, see Chapter 2). The site is located in an open field covered by mixed grasses and weeds, with several briar patches on the western end and near the datum. Although an old two-track dirt road passes through the site, disturbances were generally limited to bioturbation and erosion. Contextual integrity of the site is judged to be good.

Twenty-four shovel tests were excavated in and around the site, 11 being within the site boundaries (Figure 57). In all, 36 artifacts were recovered by subsurface shovel testing at the site, for an average artifact density of 3.3 artifacts per onsite shovel test. Artifacts were recovered down to 80 cm below surface in Shovel Test 7. The generalized soil profile for the site begins with a dark grayish brown to dark yellowish brown (10YR



g:\1106-01\figures\41tt664.fh4

Figure 57. Pace and compass map of site 41TT664.

4/2 to 10YR 4/6) silt loam, 10 to 20 cm deep, underlain in some units by a dark yellowish brown to light yellowish brown (10YR 4/6 to 10YR 6/6) silt loam as deep as 60 cm thick. A reddish brown (5YR 4/4) clay subsoil was found at depths varying from 15 cm to 85 cm below surface. Of the 36 artifacts recovered from site 41TT664, all but one are unmodified lithic debitage. The single nondebitage artifact is an early aborted biface fragment made of Ogallala quartzite. It measures 27 mm long, 18 mm wide, and 11 mm thick, and weighs 2.9 grams. The 35 pieces of unmodified debitage consist of four primary flakes, 12 secondary flakes, six tertiary flakes, 11 bifacial thinning flakes, one thin flake fragment, and one piece of shatter. Raw material types among the lithic debitage include quartzite (n=17), Ogallala quartzite (n=11), chert (n=6), and silicified wood (n=1). The lithic debitage also tends to be of moderate size, with six pieces less than 6.3 mm, 12 between 6.3 and 9.5 mm, 10 between 9.5 and 12.5 mm, six between 12.5 and 19 mm, and one between 19 and 25 mm in size.

In summary, site 41TT664 is a large, moderate density prehistoric site of an unknown period, located on an upland ridge south of Horse Creek. Based on its size and density, the site has been classified as a high intensity occupation. Considering the large area that this site covers, as well as its moderate subsurface density and good contextual integrity, it may have a good research potential. Therefore, it is recommended that site 41TT664 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations designed to determine its NRHP status have been undertaken.

Site 41TT665

Site 41TT665 is a small, low density prehistoric site located on an upland ridge and terrace below the ridge top. It is at an elevation of 91 m amsl and covers about 700 m² (70-x-20 m). The nearest water source is a natural spring in the low area between ridge tops. The soil in the area is mapped as being Freestone fine sandy loam, 1 to 3 percent slopes (for a description of this soil, see Chapter 2). The site area has been cleared, possibly by heavy machinery, and is now in secondary growth with many small trees of red oak, hickory, and ash, and dense thickets of briars. Along with the two-track road that crosses the site, other disturbances observed include bioturbation on the terrace and deflation across the entire ridge. Contextual integrity of the site is considered to be good.

Twelve shovel tests were excavated in and around site 41TT665, but only two contained any cultural material and were used to define the limits of the site (Figure 58). Four artifacts were collected from subsurface shovel testing, for an average density of 2.0 artifacts per onsite shovel test. Artifacts were recovered from as deep as 20 cm beneath the surface. The generalized soil profile begins with a dark grayish brown to dark yellowish brown (10YR 4/2 to 10YR 4/6) silty loam, 5 to 20 cm thick, underlain by a reddish brown (5YR 4/4 to 5YR 4/6) clay. Only the four artifacts recovered from shovel testing on the site were collected, although one additional artifact, a fragment of lithic debitage, was observed on the surface of the two-track road on the eastern side of the site. The four recovered artifacts included one finished bifacial tool, one core, and two pieces of unmodified lithic debitage. The finished bifacial tool consisted of a Friley arrow point and was the only artifact recovered from Shovel Test 6 (Figure 59). This point is made of Ogallala quartzite; measures 23 mm long, 11 mm wide, and 3 mm thick; and weighs .6 gram. It has prominent shoulders and a narrow body with one straight and one concave lateral blade edge. The shoulders project laterally. The stem is square. The core is an angular, but stream worn, tested chert pebble which measures 25 mm long, 27 mm wide, and 16 mm thick, and weighs 9.9 grams. Two flakes have been struck from this pebble core. The unmodified debitage consists of a quartzite secondary flake and a piece of Ogallala quartzite shatter. Both range from 12.5 to 19 mm in size.

In summary, site 41TT665 is a small, low density prehistoric site located on an upland ridge and terrace below the ridge top south of Horse Creek. On the basis of the Friley arrow point recovered from Shovel Test 6, the site probably dates to the Early Caddoan period and may be contemporary with site 41TT663.

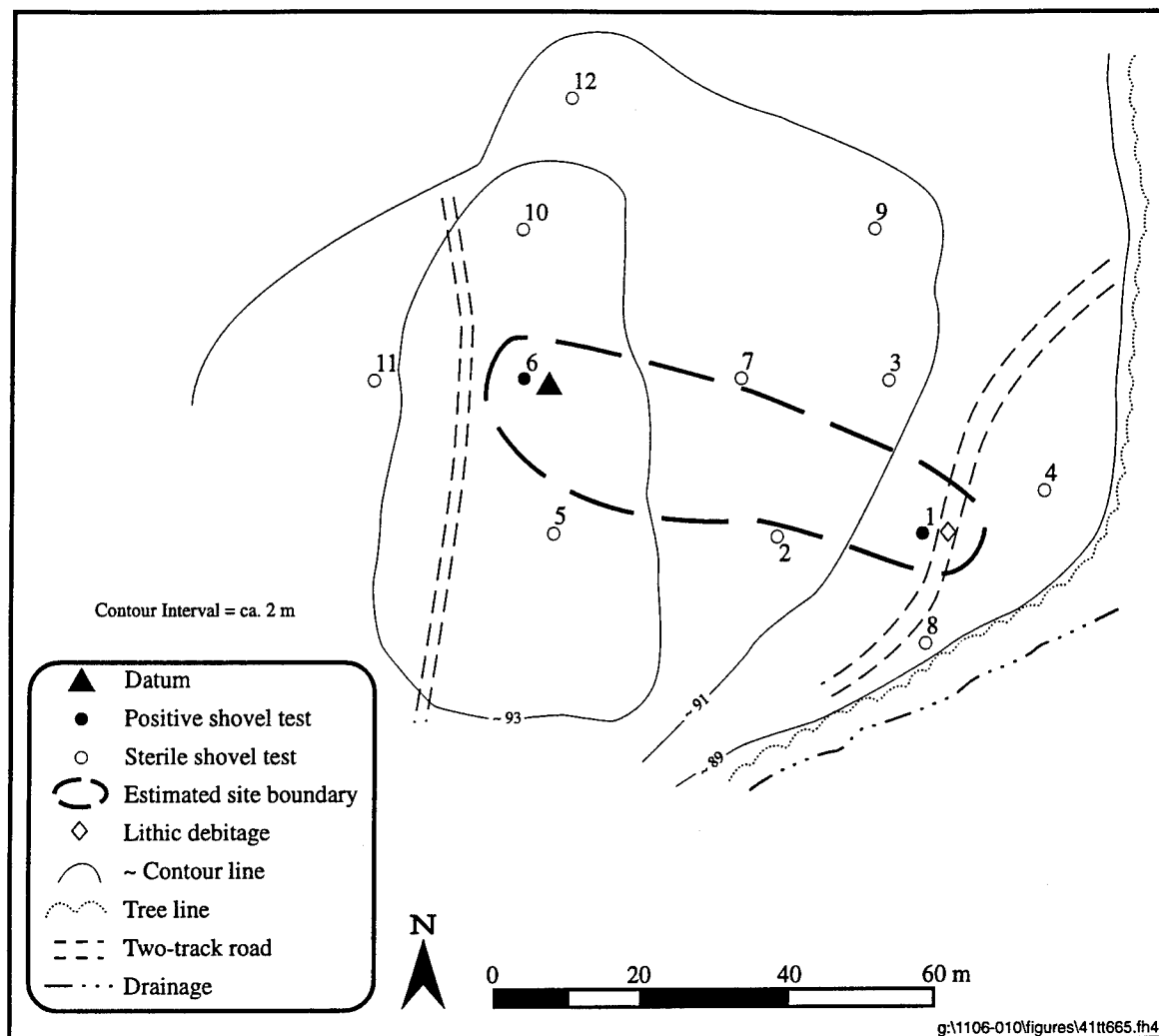


Figure 58. Pace and compass map of site 41TT665.

Given its small size and low density, it is classified as a low intensity occupation. Despite this, the site appears to have good contextual integrity and it may have a good research potential. Therefore, it is recommended that site 41TT665 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT666

Site 41TT666 is a small, low density prehistoric site located on a low terrace immediately overlooking Horse Creek to the north. The site is at an elevation of 83 m amsl and covers approximately 500 m² (50-x-20 m). Site 41TT665 is 90 m to the south. The nearest source of water is Horse Creek, which is only 5 m to the north. Soil in the area is mapped as Estes clay loam, frequently flooded (for a description of this soil, see Chapter 2). The site is in an open field covered with mixed grasses and some dense thickets of greenbriar. Some slumping has occurred along the northern limits of the site, along the edge of the terrace. Sheet erosion is also affecting the site. Although a two-track road passes near the site, it is believed not to have affected it. Contextual integrity of the site is judged to be fair.

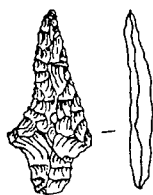


Figure 59. Friley arrow point recovered from site 41TT665 (Shovel Test 6, Level 1) (Scale 1:1).

Twelve shovel tests were dug in and around site 41TT666, but only three were inside the site boundary as defined by two positive shovel tests (Figure 60). Three artifacts were collected from the site, for an average density of 1.0 artifact per onsite shovel test. Artifacts were recovered from as deep as 80 cm beneath the surface. The generalized soil profile observed during shovel testing began with a brown to dark yellowish brown (10YR 4/3 to 10YR 5/4) sandy loam 15 to 80 cm deep. The subsoil is a strong brown to yellowish brown (7.5YR 4/6 to 10YR 5/8) clay. The only three artifacts collected from site 41TT666 consisted of unmodified lithic debitage. The sample includes two tertiary flakes and a bifacial thinning flake. All of the flakes are made of chert; two measure between 9.5 and 12.5 mm in size, while the remaining tertiary flake is 6.3 to 9.5 mm in size.

In summary, site 41TT666 is a small, low density site of an unknown prehistoric period, located on a low terrace immediately overlooking Horse Creek to the north. It has been classified as a low intensity occupation, based on its size and subsurface density. The site has only fair contextual integrity, and its small size, low density, and lack of variety within the artifact sample are believed to severely limit its research potential. It is therefore recommended that site 41TT666 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41TT667

Site 41TT667 is a small, low density prehistoric site located on an upland finger ridge and a low terrace overlooking Horse Creek. The site is at an elevation of 85 m amsl and covers about 1,200 m² (60-x-20 m). The nearest water source is Horse Creek, about 60 m to the north. Soil in the area is mapped as Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is located in an open field covered with mixed grasses and the occasional thicket of red oak, pin oak, ash, and greenbriar. The site area is bioturbated and an old two-track road crosses it.

Thirteen shovel tests were excavated in and around site 41TT667, five of which were positive and were within the site limits (Figure 61). Seven artifacts were collected from these shovel tests, for an average subsurface density of 1.4 artifacts per onsite shovel test. Artifacts were recovered down to 60 cm below surface in Shovel Test 1. The generalized soil profile observed during shovel testing began with a light grayish brown to yellowish brown (10YR 4/2 to 10YR 5/4) sandy loam, 20 cm deep across most of the site, underlain by a reddish brown to strong brown (5YR 4/6 to 7.5YR 5/6) clay. In Shovel Tests 1 and 8, a dark yellowish brown (10YR 4/6) sandy loam extended 40 cm beneath the surface. The seven artifacts recovered from site 41TT667 consist entirely of unmodified lithic debitage. They include one primary flake, one secondary flake, two tertiary flakes, and three bifacial thinning flakes. Chert (n=5) was the main raw material observed, with the remaining artifacts made of Ogallala quartzite (n=2). The artifacts are relatively small, with one less than 6.3 mm in size, three between 6.3 and 9.5 mm, and three between 9.5 and 12.5

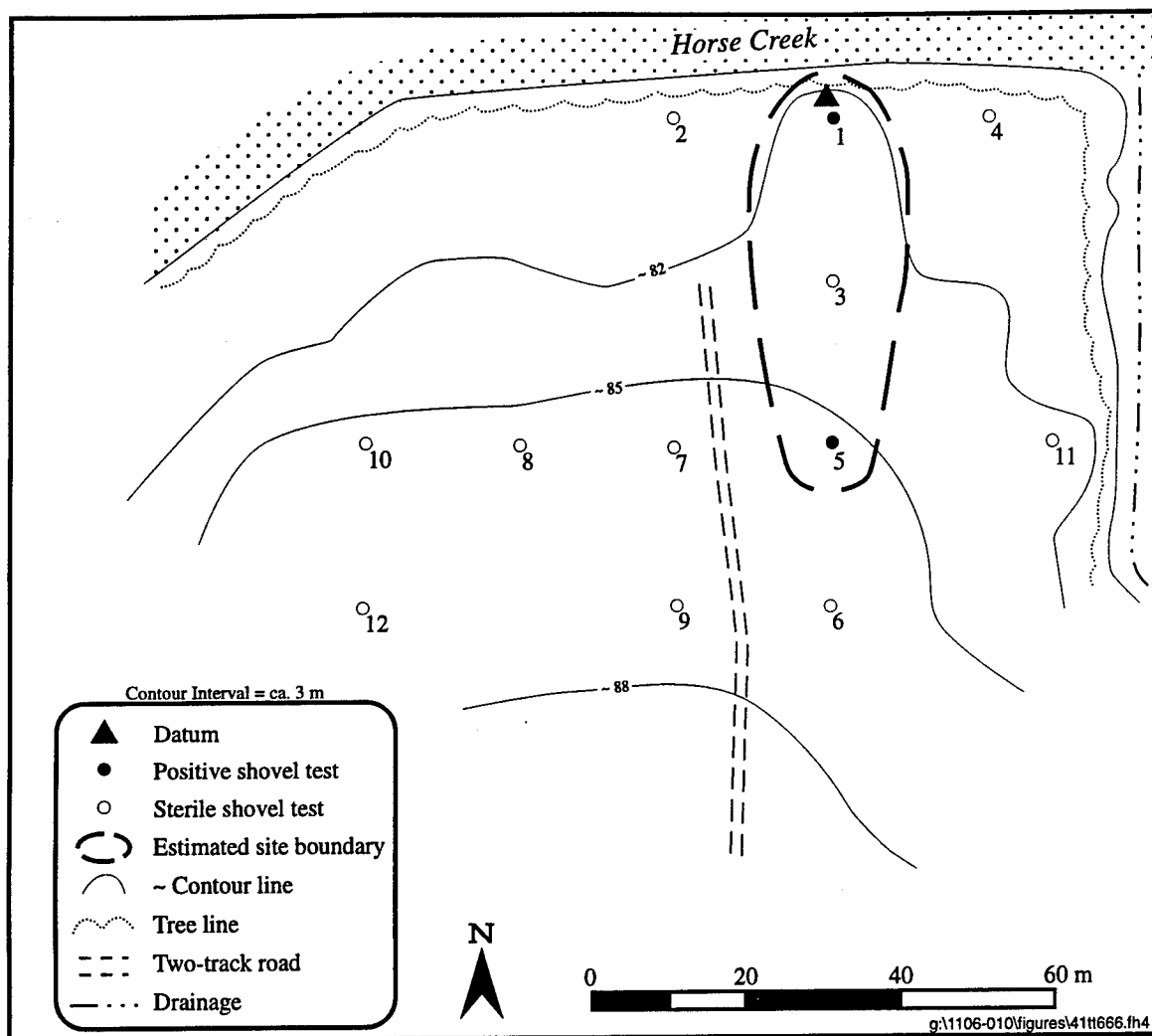


Figure 60. Pace and compass map of site 41TT666.

mm in size. In addition to two lithic flakes, Shovel Test 1 also contained one burned shell fragment, at 0 to 20 cm below the surface.

In summary, site 41TT667 is a small, low density site of an unknown prehistoric period, located on a narrow upland ridge and an adjacent low terrace overlooking Horse Creek. It has been classified as a low intensity occupation, based on its size and subsurface artifact density. The presence of shell fragments on the site suggests that preservation of faunal and macrobotanical remains may be good, and the site is considered to have excellent contextual integrity. Thus, although the site is small with a low artifact density, it is felt that it may retain good research potential. It is therefore recommended that site 41TT667 be considered of unknown eligibility for inclusion in the NRHP and that it be protected until test excavations designed to determine its NRHP status have been undertaken.

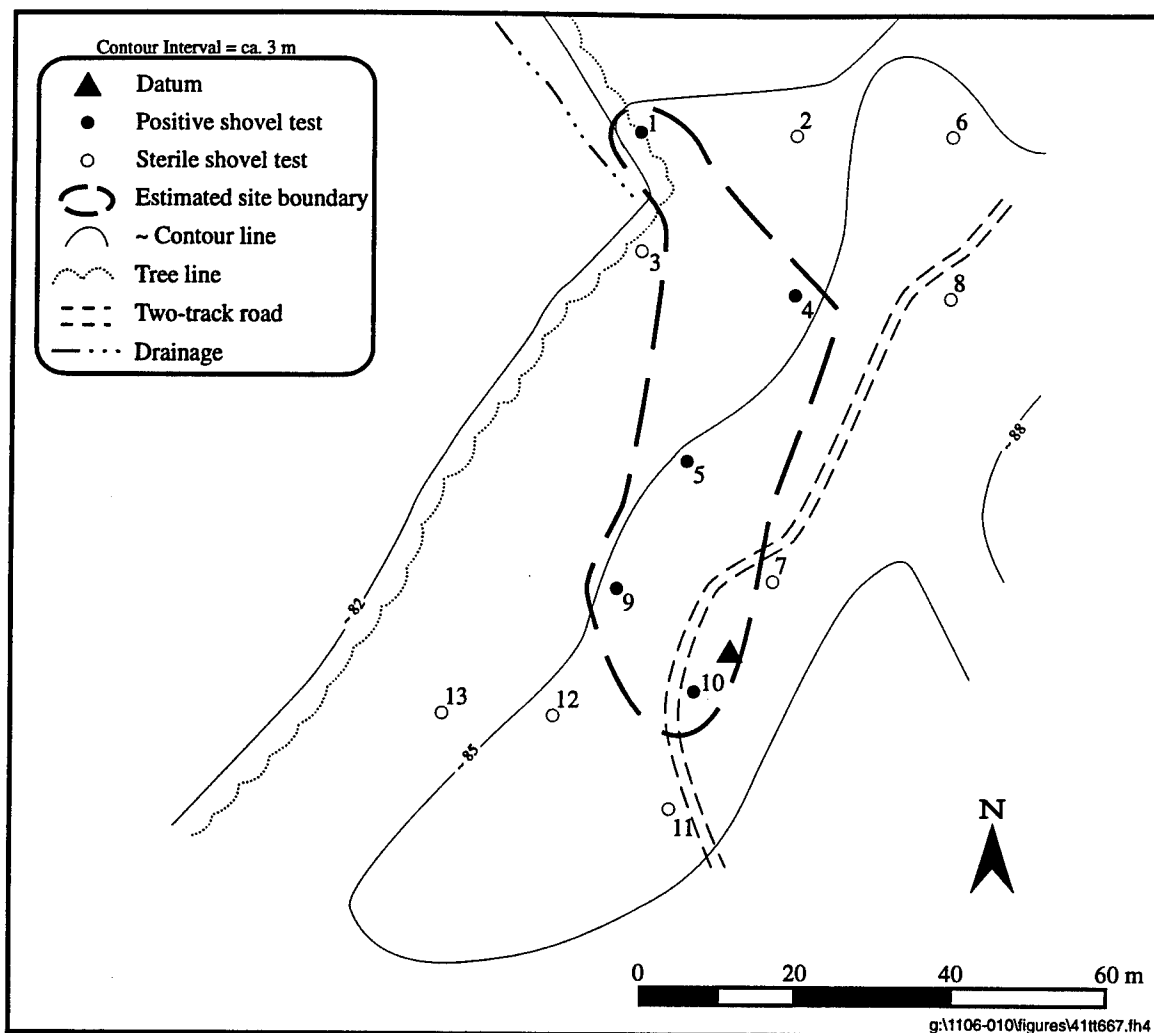


Figure 61. Pace and compass map of site 41TT667.

Site 41TT668

Site 41TT668 is a very small, low density prehistoric site located on a small knoll at the southern tip of an upland terrace north of White Oak Creek. The site is at an elevation of 84 m amsl and covers an estimated 300 m² (30-x-10 m). The nearest water sources are a swampy area about 150 m west and an intermittent drainage about 150 m to the east. The soil in the area is mapped as being Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site is located in an open field covered with mixed grasses. A two-track road and fence line pass near the site but are not believed to have impacted it. Some disturbance from bioturbation was noted. Contextual integrity of the site is believed to be good.

Seven shovel tests were excavated in and around site 41TT668, two of which were within the site boundary (Figure 62). Five artifacts were recovered from these tests for an average density of 2.5 artifacts per onsite shovel test. Artifacts were recovered as deep as 80 cm below surface in Shovel Test 1. The generalized soil profile observed during shovel testing consisted of a brown to yellowish brown (10YR 4/3 to 10YR 5/6) loamy sand, extending to the maximum depth of the shovel tests at 80 cm below surface. The five artifacts

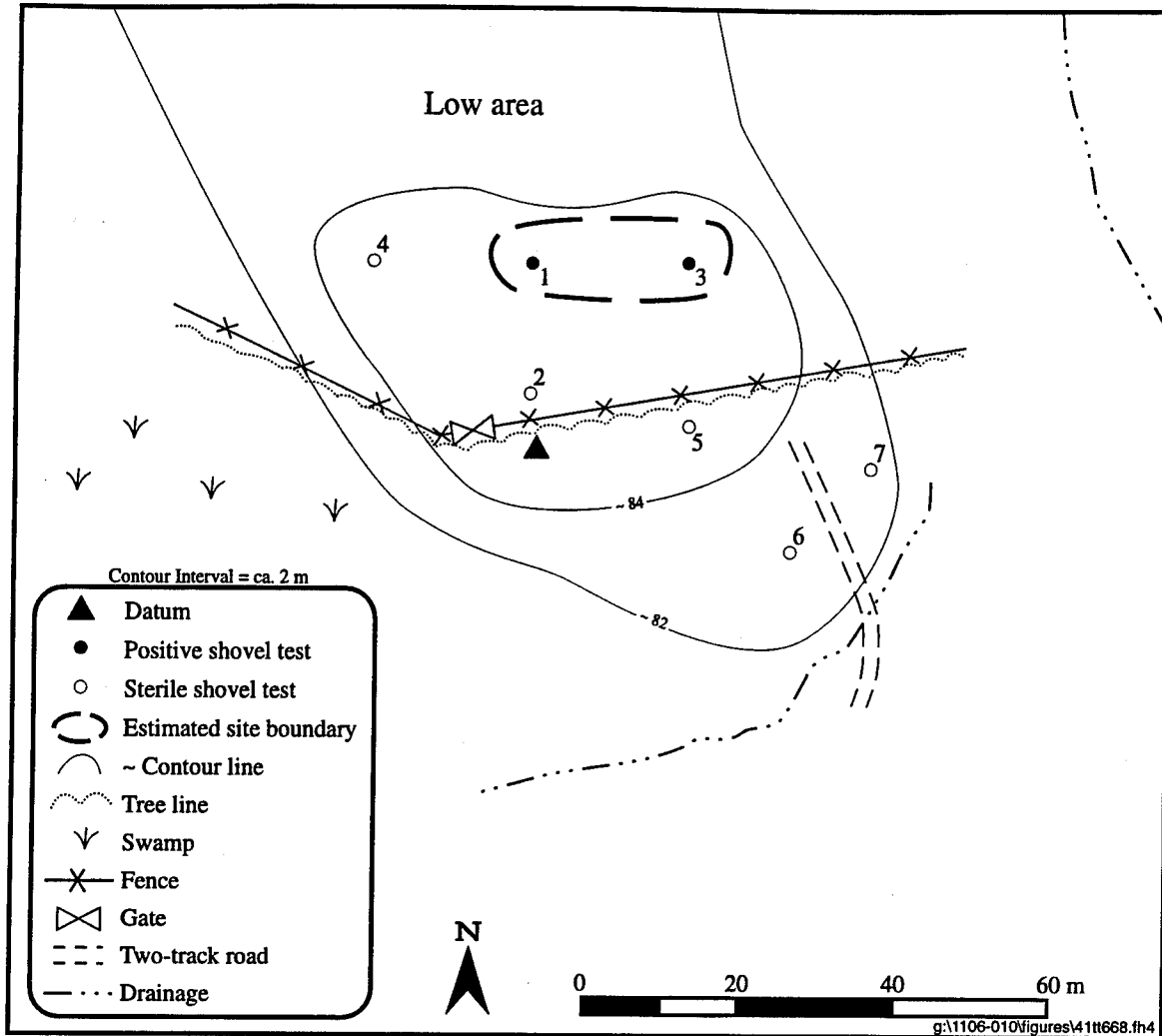


Figure 62. Pace and compass map of site 41TT668.

collected at site 41TT668 consist of one unfinished biface and four pieces of unmodified lithic debitage. The unfinished biface is complete and was aborted early in the manufacturing process. Cortex completely covers both faces of this artifact. It is made of silicified wood; measures 28 mm long, 19 mm wide, and 7 mm thick; and weighs 4.8 grams. The unmodified debitage consists of three secondary flakes and a bifacial thinning flake. Flake raw material includes chert (n=3) and quartzite (n=1). One flake ranges from 6.3 to 9.5 mm in size, while three flakes are between 9.5 and 12.5 mm.

In summary, site 41TT668 is a very small, low density site of an unknown prehistoric period, located on a small knoll at the southern tip of an upland terrace north of White Oak Creek. Based on its size and subsurface density, the site has been classified as a low intensity occupation. Despite its small size, the site has good contextual integrity and may have a good research potential. It is therefore recommended that site 41TT668 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT669

Site 41TT669 is a small, low density prehistoric site located on an isolated knoll in the lowlands adjacent to White Oak Creek. It is at an elevation of 85 m amsl and occupies about 1,400 m² (70-x-20 m). The nearest water source is an intermittent drainage which feeds into Little Grassy Lake to the south. The soil in the area is mapped as Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The knoll is covered by an open woodland of box elder, red oak, hickory, and elm, with very little underbrush. Some disturbance from bioturbation was noted. Other areas of the site were disturbed by sheet erosion. Contextual integrity of the site is believed to be good.

In all, 12 shovel tests were excavated in and around site 41TT669, six of which were within the defined site limits (Figure 63). Thirteen artifacts were collected from these shovel tests, for an average density of 2.2 artifacts per onsite shovel test. Artifacts were recovered down to 60 cm below surface in Shovel Tests 5, 6, and 7. A generalized soil profile for the site begins with a brown (10YR 4/3) silt loam, 20 cm thick, underlain by a yellowish brown (10YR 5/4 to 10YR 5/6) silt loam up to 80 cm below surface. The artifact sample recovered from the site includes six prehistoric ceramic sherds and seven pieces of unmodified debitage. The ceramics are all small body sherds, with no decoration. Three are from the same vessel and may be from a vessel base. All of the sherds are tempered with clay/grog. Sherd thicknesses are 5.0 mm (n=2), 6.0 mm (n=1), and 8.0 mm (n=3, all from same vessel). Counting the three sherds from the single vessel as one, mean sherd thickness is 6.0 ± 1.2 mm (n=4). The sample of unmodified debitage consists of primary flakes (n=1), secondary flakes (n=1), tertiary flakes (n=4), and bifacial thinning flakes (n=1). Raw material types include quartzite (n=3), chert (n=2), Ogallala quartzite (n=1), and silicified wood (n=1). The flakes tend to be small, with four less than 6.3 mm in size, one between 6.3 and 9.5 mm, one between 9.5 and 12.5 mm, and one between 12.5 and 19 mm in size.

In summary, site 41TT669 is a small, low density prehistoric site located on an isolated knoll in the lowlands adjacent to White Oak Creek. The site is dated to either the Early Ceramic or Caddoan period, based on the presence of ceramics. Considering the site's size and subsurface density, it has been classified as a low intensity occupation. Despite this, the site has good contextual integrity and may have good research potential. It is therefore recommended that site 41TT669 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT670

Site 41TT670 is a very large, high density prehistoric site located on an isolated terrace in the floodplain north of White Oak Creek. The terrace is covered with small, natural rises on which most of the shovel tests were placed. The site is at an elevation of 87 m amsl and covers an estimated area of about 37,500 m² (500-x-75 m). The nearest water source to the site is Little Grassy Lake, which is about 50 m south of the terrace. Little Grassy Lake is at the edge of the White Oak Creek floodplain and it may occupy a portion of an old creek channel. The area is mapped as being on the boundary between Woodtell fine sandy loam, 5 to 20 percent slopes, and Estes clay loam, frequently flooded (for descriptions of these soils, see Chapter 2). The site area is in an open woodland of box elder, red and white oak, hickory, and elm, with a sparse underbrush of greenbrier and mixed grasses. A two-track road passes through the site, and there are fairly large areas of wild hog rooting. Neither of these disturbances are believed to have made a significant impact on this very large site.

In all, 44 shovel tests were excavated in and around site 41TT670 (Figure 64). Thirty-nine of these tests are within the site boundary, as defined on the basis of the tests and on the basis of topography. A total of 276 artifacts was recovered through shovel testing, for an average subsurface density of 7.1 artifacts per onsite shovel test. The densest part of the site centers around Shovel Tests 10, 11, 12, and 13. These four units

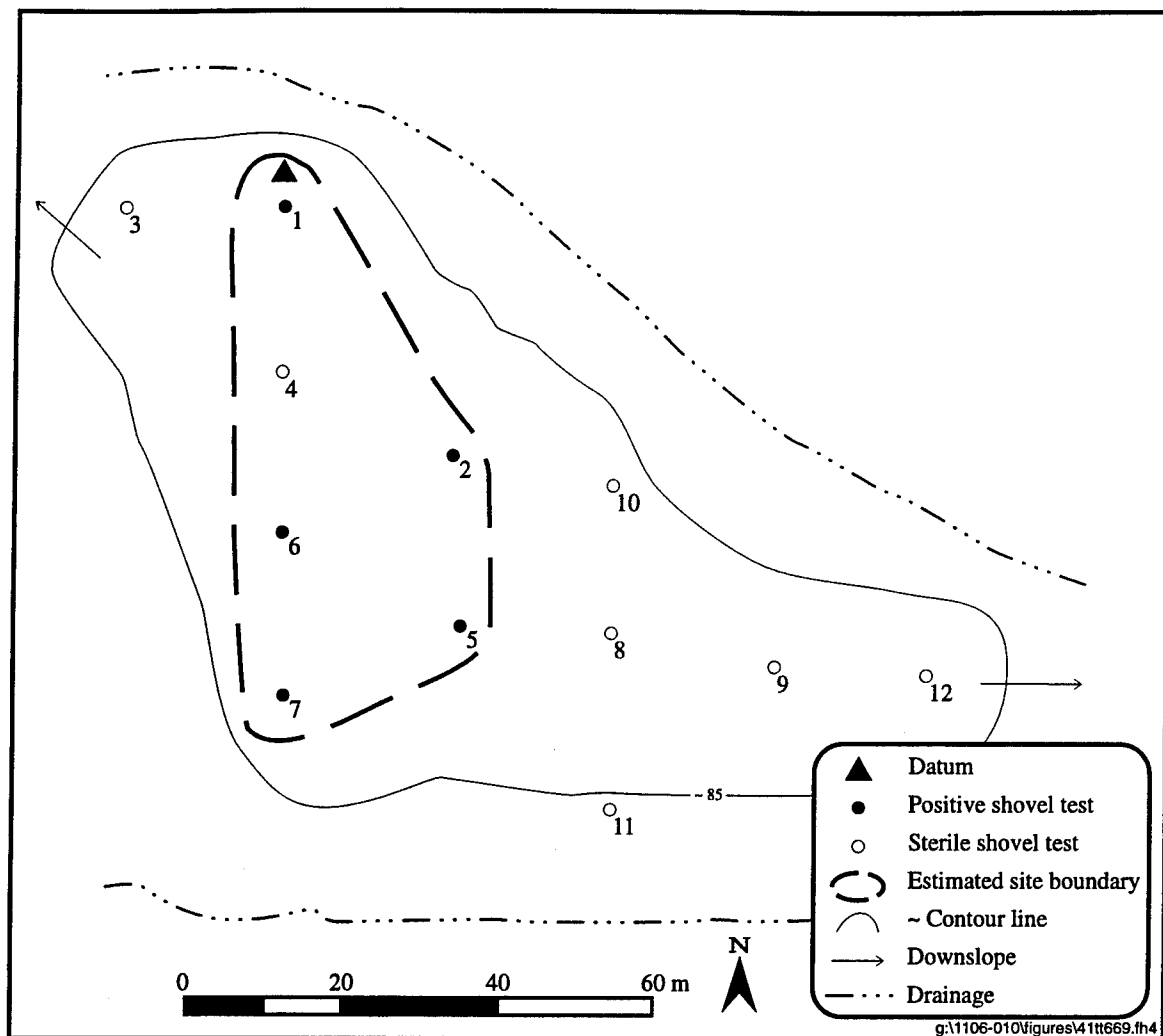


Figure 63. Pace and compass map of site 41TT669.

produced over one-third ($n=105$) of the total artifact sample, for an average subsurface density of 26.3 artifacts per shovel test in this area. Another area of high subsurface artifact density is located around Shovel Tests 19, 20, 22, and 23 ($n=48$, average=12 per shovel test). In addition, several isolated surface artifacts were observed, along with a concentration near the site datum. These surface artifacts included prehistoric ceramics, unmodified debitage, ground stone, and burned rock. Two prehistoric ceramic sherds were collected from the surface. The generalized soil profile observed at the site consisted of a dark yellowish brown to yellowish brown (10YR 4/4 to 10YR 5/4) loamy sand, about 20 cm thick, underlain by a dark yellowish brown to light yellowish brown (10YR 4/4 to 10YR 6/6) silt loam, down to about 35 cm. This in turn was underlain by a yellowish brown (10YR 5/6) silty clay, from 35 to 100 cm beneath the surface. Artifacts were recovered down to 80 cm below surface in Shovel Tests 4, 8, 10, 11, 13, 14, 17, 19, 22, 23, 24, 31, 32, 33, 36, 37, and 40, and to 100 cm in Shovel Test 12.

Site 41TT670 produced a total of 278 artifacts, collected from both subsurface ($n=276$) and surface ($n=2$) contexts. The sample consists of 80 prehistoric ceramic sherds, six pieces of baked clay, one finished bifacial tool, two unfinished bifaces, five utilized flakes, 165 pieces of unmodified debitage, two fragments of ground/pecked/battered stone, and 17 pieces of burned rock. The ceramic sample from site 41TT670

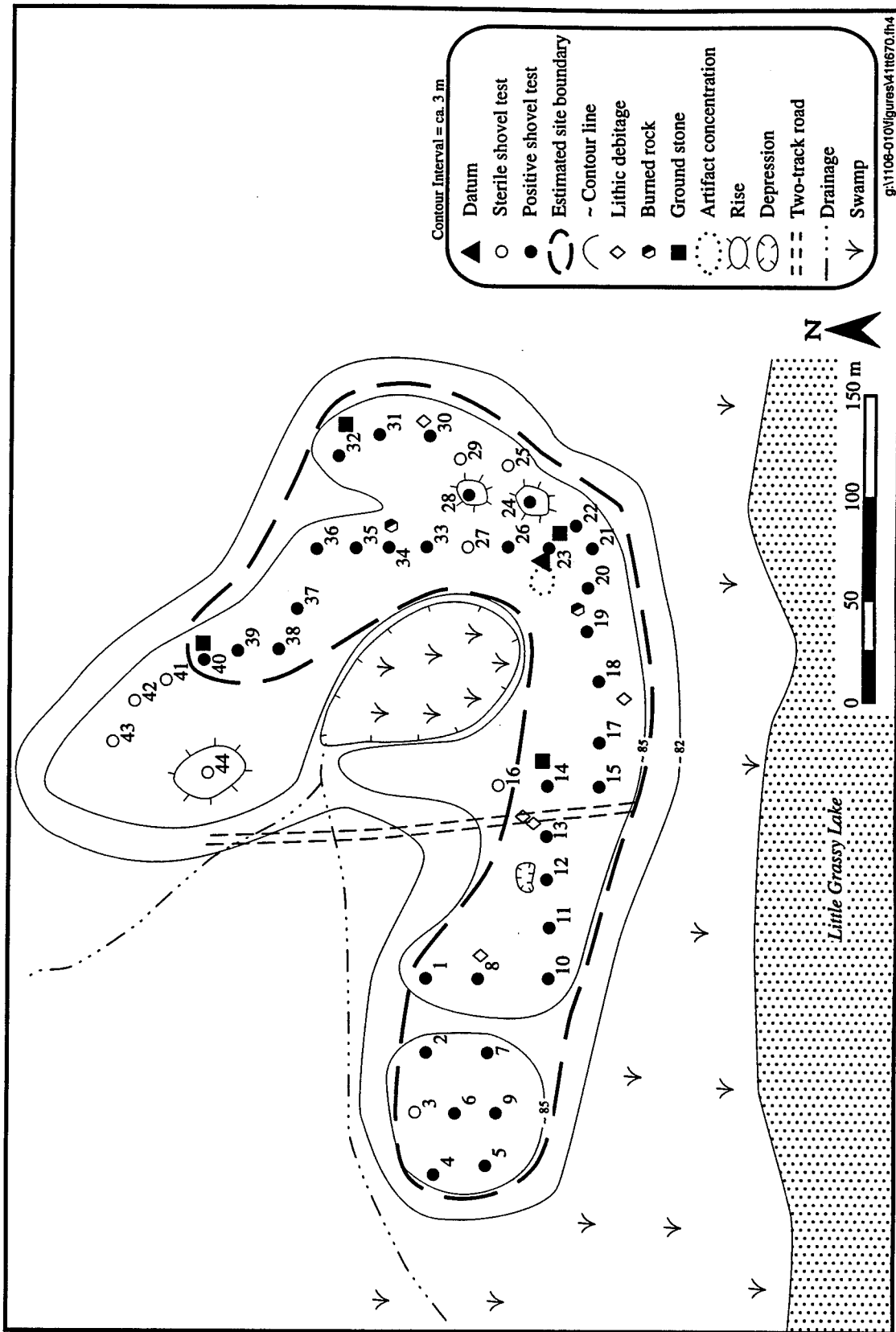


Figure 64. Pace and compass map of site 41TT670.

consists of three rim sherds, 63 body sherds (including one sherd which appears to be from the neck of a bottle), and 14 sherd fragments which are broken longitudinally. Of the body sherds, nine can be matched as coming from four vessels (two sherds each from three vessels, and three sherds from a fourth vessel). Almost all of the sherds ($n=77$; 96 percent) are tempered with clay/grog (seven of these are from three vessels). The remaining three sherds are tempered with clay/grog and bone (two of these are from the same vessel). Fifty-three of the sherds, including the three rims, are undecorated (seven of these are from three vessels), two are burnished, two are polished, and one is red filmed or slipped. One of the polished sherds is from a black bowl while the other appears to be from a buff-colored bottle. The red filmed sherd is a small fragment with traces of red on one side. The undecorated rim sherds include one with a thinned rim and a flattened lip, and two with thinned rims and rounded lip. All three are too small to orient reliably. Decorated sherds include two with multiple, parallel incised straight lines (orientation unknown); three with fingernail punctations or impressions (two from the same vessel); two that appear to be brushed; and two punctated-incised. One of these latter two sherds has a single incised straight line with small round punctations (Figure 65a); the other has multiple parallel straight lines and fingernail punctations (Figure 65b). None of these sherds can be identified as to type. Sherd thickness could be measured only on the 66 whole sherds. They are distributed as follows: 4.0 mm ($n=5$); 5.0 mm ($n=21$; two sherds from one vessel, three sherds from a second vessel); 6.0 mm ($n=12$); 7.0 mm ($n=14$); 8.0 mm ($n=9$); and 9.0 mm ($n=5$; two sherds from the same vessel). Counting multiple sherds from the same vessel as one sherd, the mean thickness for this sample is 6.3 ± 1.4 mm ($n=62$). A number of sherds seem to be characterized by post-depositional burning, suggesting midden disposal.

The single finished bifacial tool recovered from site 41TT670 is a fragment which appears to be from the corner of the base of an arrow point. It is triangular in shape, with two bifacially retouched finished edges and one snap fractured edge. It is made of chert; measures 10 mm long, 12 mm wide, and 3 mm thick; and weighs .2 gram. In addition to this finished biface fragment, two unfinished bifaces were recovered. One is a late aborted biface fragment made of quartzite. It measures 30 mm long, 17 mm wide, and 9 mm thick, and weighs 3.6 grams. The other appears to be an arrow point preform made of quartzite. It measures 26 mm long, 15 mm wide, and 4 mm thick, and weighs 1.5 grams. The sample of utilized flakes includes one secondary flake, one tertiary flake, and three bifacial thinning flakes which all bear microflake scars indicative of expedient use. Four of these are chert and one is Ogallala quartzite. Two pieces of ground/pecked/battered quartzitic sandstone were recovered from 20 to 40 cm below the surface in Shovel Test 40. One appears to have been used as a mano. Five of its six surfaces show grinding facets, with distinct striations, on their raised areas. Unfaceted areas show smoothing. It measures 73 mm long, 49 mm wide, and 49 mm thick, and weighs 370.7 grams. The other stone has similar ground edges and smoothed surfaces. Its size and shape suggest it functioned as a grinding slab. It measures 91 mm long, 78 mm wide, and 41 mm thick, and weighs 436.3 grams. The sample of unmodified lithic debitage from the site ($n=165$) consists of 10 primary flakes, 54 secondary flakes, 55 tertiary flakes, 36 bifacial thinning flakes, eight pieces of nondiagnostic shatter, and two thin flake fragments. Five raw material types were identified in the lithic debitage: chert ($n=73$), quartzite ($n=49$), Ogallala quartzite ($n=39$), silicified wood ($n=3$), and hematite ($n=1$). The debitage tends to be small, with 44 flakes less than 6.3 mm in size, 75 between 6.3 and 9.5 mm, 32 between 9.5 and 12.5 mm, 12 between 12.5 and 19 mm, and two pieces between 19 and 25 mm in size. The 17 fragments of burned rock consist of 15 pieces of quartzite (weighing 153.5 grams), one piece of petrified wood (4.0 grams), and one piece of sandstone (11.7 grams). None of the six fragments of baked clay showed any kind of impression. Collectively, they weighed 6.4 grams.

In addition to the artifactual remains, four fragmentary pieces of animal bone were recovered from subsurface shovel testing at site 41TT670. Three of the four came from Shovel Test 11. A lightly weathered, calcined, indeterminate fragment of a medium to large mammal (possibly deer) was recovered from the upper 20 cm of the unit. It exhibited the angular fracturing indicative of breaks that occur after the bone has lost its collagen, either due to time, weathering, or exposure to fire. At 20 to 40 cm beneath the surface, a calcined fragment of a fused third and fourth metatarsal from a medium-sized Artiodactyl (almost

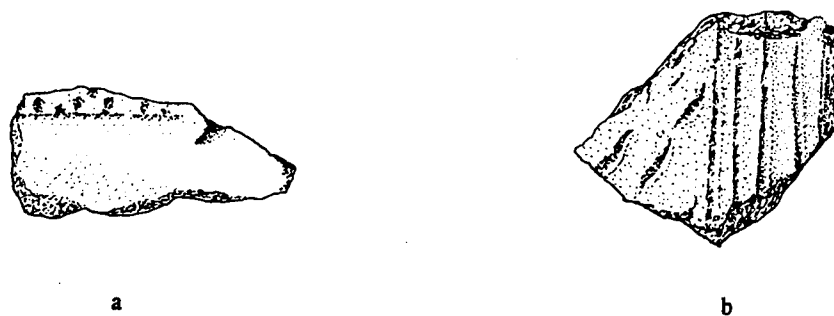


Figure 65. Decorated ceramics from site 41TT670: (a) unidentified incised and punctated sherd (Shovel Test 11, Level 3); (b) unidentified incised and punctated sherd (Shovel Test 23, Level 3) (Scale 1:1).

certainly deer) was found. It was also lightly weathered and exhibited angular fracturing. Finally, a lightly weathered, angular fractured cheek tooth fragment identified as deer (*Odocoileus* sp.) was collected from 40 to 60 cm beneath the surface. Shovel Test 32 produced the final faunal element, a calcined indeterminate fragment of a medium to large mammal, also recovered from between 40 and 60 cm below ground surface. It was lightly weathered and exhibited angular fracturing.

In summary, site 41TT670 is a very large, high density prehistoric site located on an isolated terrace in the floodplain north of White Oak Creek. The presence of a large number of plain sherds, together with the use of straight line incising, fingernail punctating or impressing, and punctated-incised decoration, suggests a primary occupation during the Formative-Early Caddoan periods. However, the presence of a few sherds which appeared to be brushed suggests a Middle-Late Caddoan occupation as well. Based on the size of the site and its high subsurface density, it has been classified as a high intensity occupation. These factors, together with good contextual integrity and the presence of preserved faunal remains, give the site an excellent research potential. It is therefore recommended that site 41TT670 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT671

Site 41TT671 is a small, low density prehistoric site located on an upland ridge which extends into the White Oak Creek floodplain. The site is at an elevation of 89 m amsl and covers about 300 m² (30-x-10 m). The nearest water source is White Oak Creek, approximately 200 m to the west. The soil in the area is mapped as being the Derly-Raino complex, 0 to 1 percent slopes (for a description of this complex, see Chapter 2). The site is in a heavily wooded area of box elder, red and white oak, hickory, and elm with an underbrush of greenbrier and mixed grasses. A moderately eroded two-track road passes through the site. Some bioturbation is the only other disturbance to the site. Neither of these disturbances are believed to have made a significant impact on the site. Contextual integrity of the site is thus believed to be good.

Twelve shovel tests were excavated in and around site 41TT671, but only two were located within the site boundary (Figure 66). Three artifacts were recovered from these two tests, for an average of 1.5 artifacts per onsite shovel test. Artifacts were limited to the upper 20 cm of the shovel tests. The generalized soil profile observed during shovel testing consisted of a pale brown to very pale brown (10YR 6/3 to 10YR 7/4) silt loam, 20 to 40 cm deep, underlain by a yellowish brown (10YR 6/6 to 10YR 6/8) silty clay. The artifact

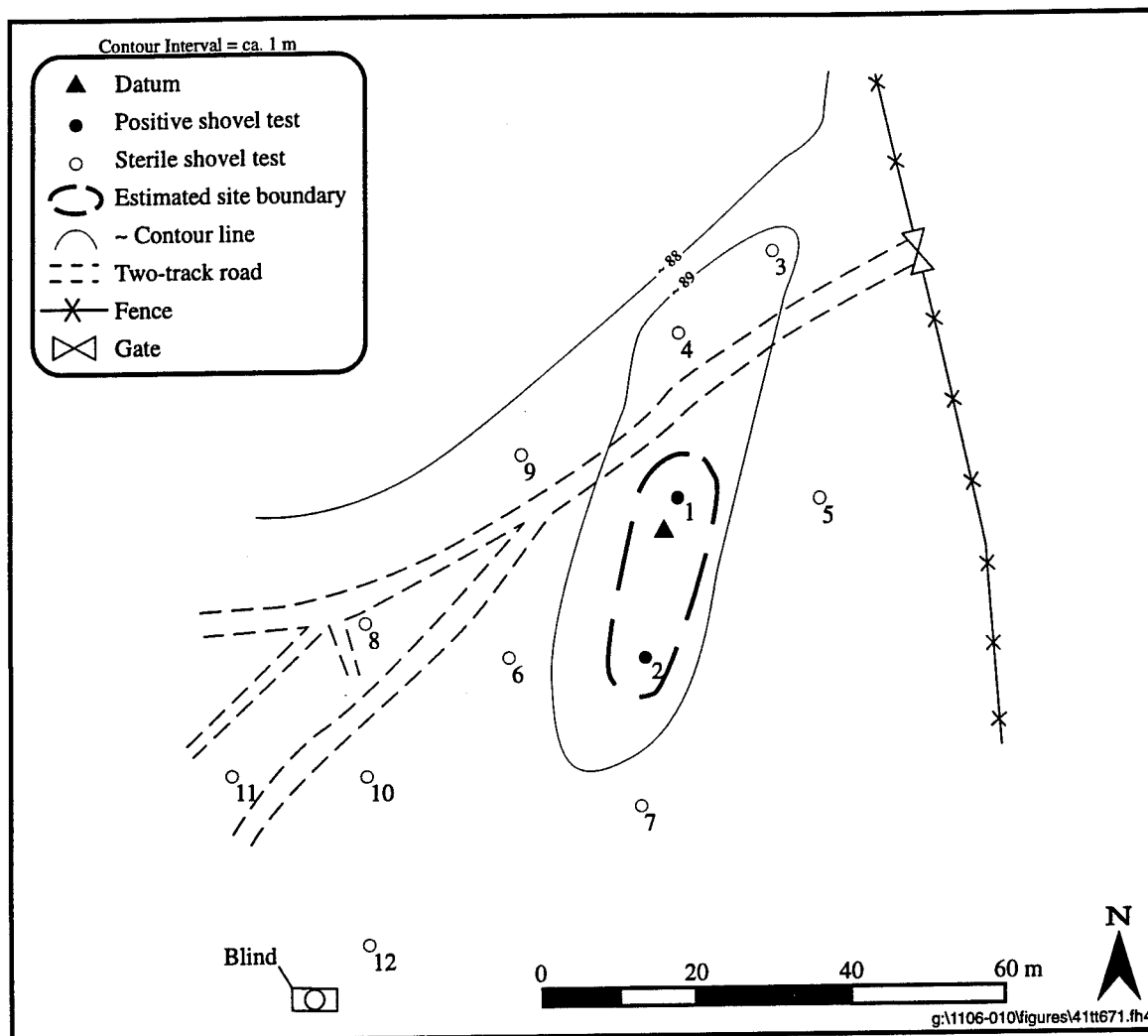


Figure 66. Pace and compass map of site 41TT671.

sample from site 41TT671 consists of one primary flake and two tertiary flakes. Raw material types are Ogallala quartzite, quartzite, and chert. One flake is less than 6.3 mm in size, while the other two are between 6.3 and 9.5 mm in size.

In summary, site 41TT671 is a very small, low density site of an unknown prehistoric period, located on an upland ridge which extends into the White Oak Creek floodplain from the east. Considering the small site area and low subsurface density, the site has been classified as a low intensity occupation. Despite its small size and apparent low density, the site has good contextual integrity and may retain a good research potential. It is therefore recommended that site 41TT671 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT672

Site 41TT672 is a large, moderate density prehistoric site located on a group of natural rises on a low upland remnant in the floodplain of White Oak Creek. The modern channel of White Oak Creek is about 150 m west of the site. It is at an elevation of 80 m amsl and covers about 8,400 m² (120-x-70 m). The soil in the area is mapped as Gladewater clay, frequently flooded (for a description of this soil, see Chapter 2). The site is covered by a dense, hardwood bottomland forest with a moderately dense understory. Vegetation observed at the site included red oak, sweetgum, elm, sassafras, dogwood, bamboo cane, greenbriar, poison ivy, and mixed grasses. Some bioturbation is the only disturbance to the site. Contextual integrity of the site is thus believed to be good.

In all, 17 shovel tests were dug in and around site 41TT672. Fourteen of these were determined to be within the site boundary (Figure 67). A total of 47 artifacts was recovered from these tests, for an average density of 3.4 artifacts per onsite shovel test. Artifacts were recovered as deep as 80 cm below surface in Shovel Tests 1, 7, 8, and 11. Shovel testing revealed a generic soil profile consisting of a brown/dark brown to yellowish brown (10YR 4/3 to 10YR 5/4) sandy loam up to 90 cm deep. In Shovel Test 12, a radically different soil profile was observed, with 20 cm of very dark grayish brown (10YR 3/2) clay at the surface. The artifact sample recovered from site 41TT672 includes one utilized flake, 44 pieces of unmodified debitage, and two pieces of burned rock. The utilized flake is a quartzite bifacial thinning flake with use-wear on its proximal end. It measures 24 mm long, 16 mm wide, and 5 mm thick, and weighs 1.5 grams. The sample of unmodified debitage consists of three primary flakes, 13 secondary flakes, 13 tertiary flakes, 11 bifacial thinning flakes, and four pieces of nondiagnostic shatter. Three raw material types were identified in the lithic debitage: quartzite (n=26), Ogallala quartzite (n=15), and chert (n=3). The debitage tends to be small, with four flakes less than 6.3 mm in size, 26 from 6.3 to 9.5 mm, 12 from 9.5 to 12.5 mm, and two from 12.5 to 19 mm in size. The two burned rock pieces are quartzite and have a combined weight of 11.0 grams.

In summary, site 41TT672 is a large, moderate density site of an unknown prehistoric period, located on a series of natural rises on a sandy upland remnant within the floodplain of White Oak Creek. Based on its size and subsurface density, the site is classified as a high intensity occupation. The site's large size and moderate artifact density, combined with its apparently good contextual integrity, suggest that it has a good research potential. Therefore, it is recommended that site 41TT672 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT673

Site 41TT673 is a medium-sized, low density prehistoric site located on an upland remnant north of White Oak Creek. The site is at an elevation of 80 m amsl and covers approximately 4,000 m² (100-x-40 m). The soil in the area is mapped as Gladewater clay, frequently flooded (for a description of this soil, see Chapter 2). The site is covered by a dense hardwood forest composed of red oak, sweetgum, elm, hickory, bamboo cane, greenbriar, poison ivy, poison oak, and short grasses. Some bioturbation was noted on the site. Contextual integrity of the site is thus believed to be good.

Twelve shovel tests were excavated in and around site 41TT673, eight of which were within the site boundary (Figure 68). Twenty-two artifacts were collected through subsurface shovel testing, for an average density of 2.8 artifacts per onsite shovel test. Artifacts were recovered as deep as 80 cm below surface in Shovel Tests 2, 4, and 8. Shovel testing revealed a soil profile consisting of a brown/dark brown to yellowish brown (10YR 4/3 to 10YR 5/4) sandy loam up to 80 cm deep. The subsoil does not appear to have been reached in any of these units. The artifact sample from site 41TT673 consists of one unfinished biface, 20 pieces of unmodified debitage, and one piece of burned rock. The unfinished biface fragment is made

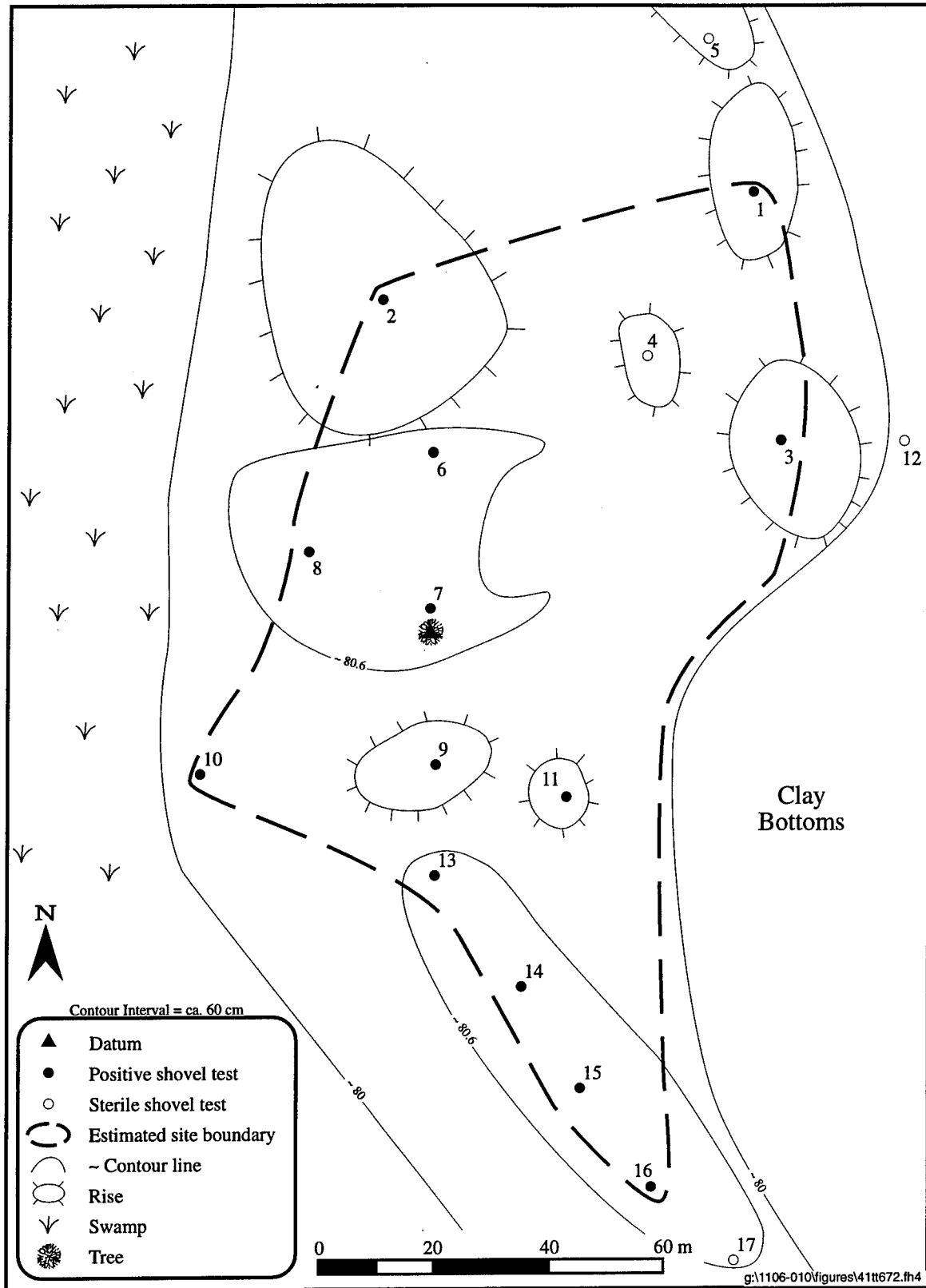


Figure 67. Pace and compass map of site 41TT672.

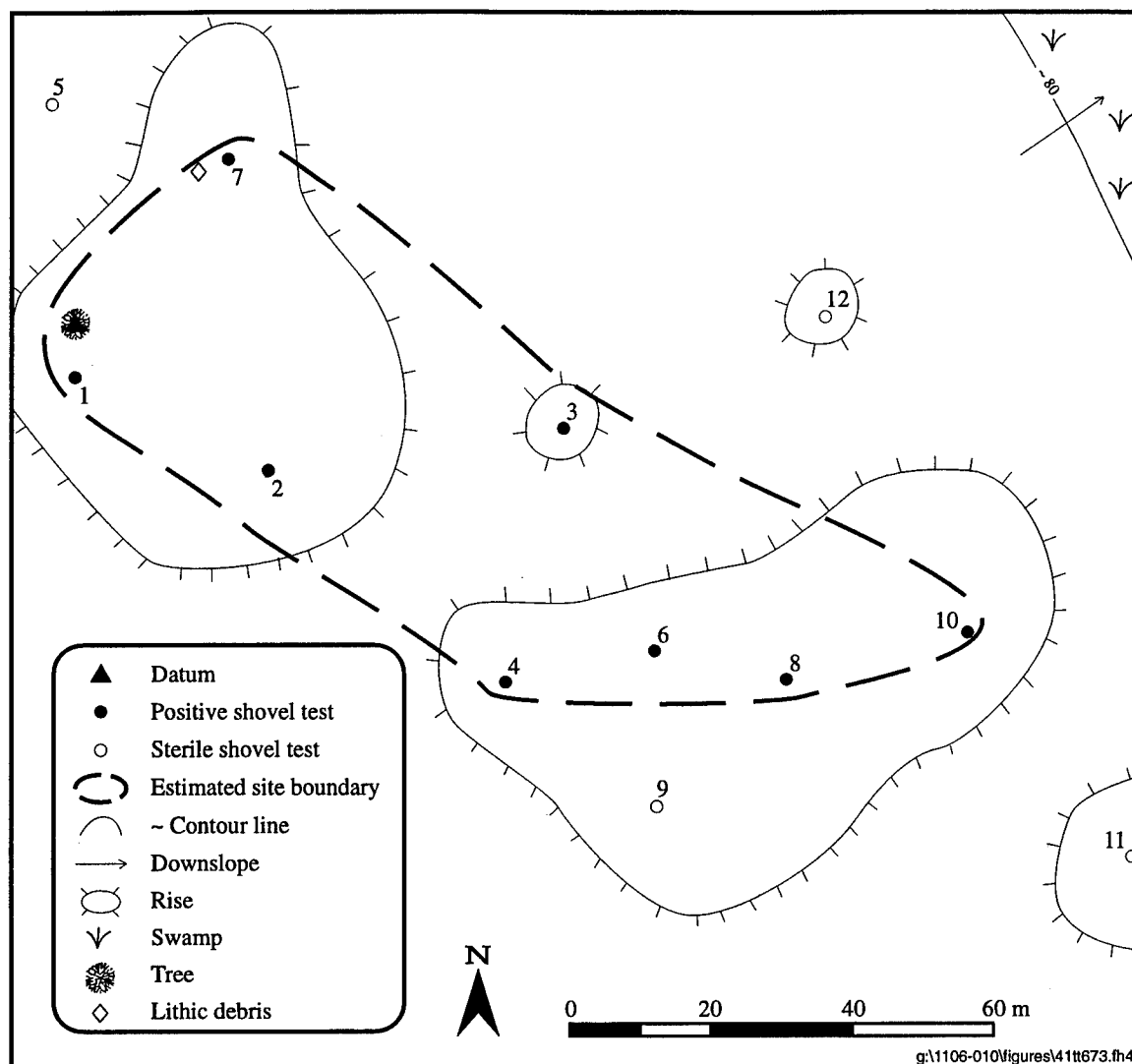


Figure 68. Pace and compass map of site 41TT673.

of chert. It measures 31 mm long, 18 mm wide, and 4 mm thick, and weighs 1.9 grams. A coarse-grained inclusion appears on both surfaces and presumably is what halted the reduction process. The unmodified debitage consists of two primary flakes, four secondary flakes, nine tertiary flakes, and five bifacial thinning flakes. Raw material present among the debitage includes quartzite (n=12), chert (n=5), and Ogallala quartzite (n=3). Two of the flakes have been burned. They also tend to be small, with three less than 6.3 mm in size, 12 from 6.3 to 9.5 mm, four from 9.5 to 12.5 mm, and only one from 12.5 to 19 mm in size. The single burned rock is quartzite and weighs 65.7 grams.

In summary, site 41TT673 is a medium-sized, low density site of an unknown prehistoric period, located on an upland remnant in the floodplain of White Oak Creek. Despite having a low subsurface artifact density, the site has been classified as a high intensity occupation based on its size. The quantity and variety of artifacts collected from the site, together with its good contextual integrity, suggest that it may have a good research potential. It is therefore recommended that site 41TT673 be considered of unknown eligibility for

inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT674

Site 41TT674 is a medium-sized, high density prehistoric site located on the edge of the uplands west of White Oak Creek. The site is at an elevation of 81 m amsl and covers about 5,700 m² (190-x-30 m). This site area is mapped as being at the intersection of Bernaldo fine sandy loam, 1 to 3 percent slopes; Estes clay loam, frequently flooded; and Gladewater clay, frequently flooded (for descriptions of these soils, see Chapter 2). The site is covered by a moderately dense hardwood forest with a moderately dense understory. Types of vegetation observed at the site include red oak, sweetgum, hickory, elm, dogwood, sassafras, vines, and dewberry. A thick mat of leaves and grass prevented good surface visibility over most of the site. Several sources of disturbance were noted on the site, including bioturbation (noticeably armadillo burrows and tree falls), erosion, and a fence line.

Eighteen shovel tests were excavated in and around site 41TT674, 13 of which were located within the site boundary (Figure 69). In all, 69 artifacts were collected from subsurface shovel testing, for an average density of 5.3 artifacts per onsite shovel test. Artifacts were recovered down to 80 cm below surface in Shovel Tests 5, 7, 11, and 12. The soil profile observed during shovel testing consisted of a yellowish brown (10YR 5/4 to 10YR 5/8) sandy loam, up to 80 cm deep. Subsoil was not reached in any of the units excavated at the site. The artifact sample recovered from site 41TT674 consists of 34 prehistoric ceramic sherds, one utilized flake, two cores, 29 pieces of unmodified debitage, and three burned rocks. The ceramic sample from site 41TT674 consists of 31 body sherds and three sherd fragments which are broken longitudinally. Of these, 16 can be matched as coming from four vessels (two sherds each from two vessels, five sherds from a third vessel, and five sherds and two fragments from the fourth vessel). Almost all of the sherds (n=32; 94 percent) are tempered with clay/grog (14 of these are from three vessels). The remaining two sherds (both from the same vessel) are tempered with clay/grog and bone. Twenty-five of the sherds are undecorated (nine of these are from two vessels) and two are red filmed or slipped (both from the same vessel). Both of the red filmed sherds are small with traces of pale red on one side only. One was recovered from Shovel Test 14 and the other from Shovel Test 16. Decorative modes include brushing and applique bands. One sherd was from a vessel with a brushed body. Another five sherds are from the shoulder of what may be a Pease Brushed-Incised jar with vertical brushing and vertical applique bands on the body (Figure 70). The single applique band from this vessel was unusually well formed and either twisted or carefully incised to form a "rope" design. Sherd thickness could be measured only on the 31 whole sherds. They are distributed as follow: 5.0 mm (n=3); 6.0 mm (n=15; two sherds from the same vessel, two sherds from a second vessel, four sherds from a third vessel); 7.0 mm (n=5; one sherd matches with four sherds in 6.0 mm class); 8.0 mm (n=1); 9.0 mm (n=5; three sherds from the same vessel); 10.0 mm (n=1; from same vessel as three sherds in 9.0 mm class); and 11.0 mm (n=1; from same vessel as three sherds in 9.0 mm class and one sherd in 10.0 mm class). Counting multiple sherds from the same vessel as one sherd, the mean thickness for this sample is 6.6 ± 1.2 mm (n=21).

The single lithic tool recovered from the site is a utilized secondary flake of chert. It weighs 6.3 grams, and measures 37 mm long, 24 mm wide, and 8 mm thick. Continuous use-wear microflaking occurs along the transverse distal edge and a portion of one lateral edge on the dorsal surface. In addition, 90-degree retouch, similar to burin wear, is present on a sharp, chisel-like edge formed by the intersection of a flake scar and the original cortex surface on the dorsal face of the flake. It is not clear if this is use-retouch or an attempt to facet a new platform prior to the removal of this flake from the core (this flake's platform is heavily faceted). The two cores recovered from the site were chert and both exhibited multidirectional flaking. One measures 49 mm long, 36 mm wide, and 18 mm thick, and weighs 29.8 grams. The other is 32 mm long, 34 mm wide, and 22 mm thick, and weighs 28.6 grams. The sample of unmodified debitage consists of one

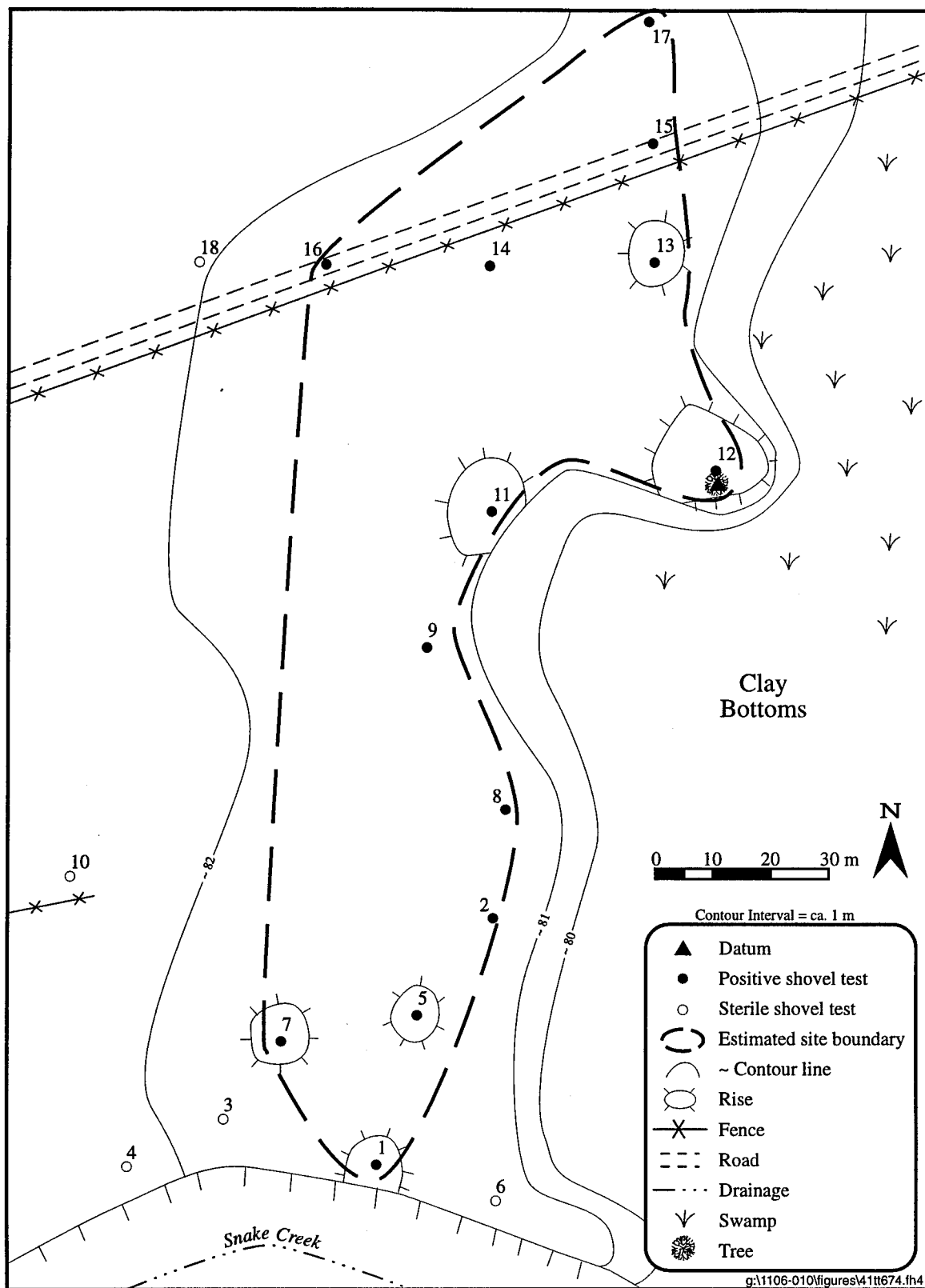


Figure 69. Pace and compass map of site 41TT674.

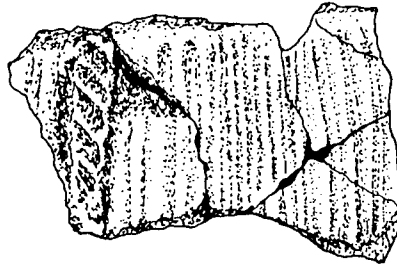


Figure 70. Sherd of Pease Brushed-Incised recovered from site 41TT674 (Shovel Test 16, Level 1) (Scale 1:1).

primary flake, 10 secondary flakes, nine tertiary flakes, and nine bifacial thinning flakes. Quartzite was the dominant raw material type ($n=15$), followed by chert ($n=9$) and Ogallala quartzite ($n=5$). The flakes are generally moderate in size, with four less than 6.3 mm, 13 from 6.3 to 9.5 mm, 11 from 9.5 to 12.5 mm, and one from 12.5 to 19 mm in size. All three pieces of burned rock are quartzite. They have a combined weight of 50.8 grams. In addition to the artifactual remains, one bone fragment was collected at between 20 and 40 cm below the surface in Shovel Test 12. It is lightly weathered and angularly fractured and could only be identified as a charred fragment from a vertebrate.

In summary, site 41TT674 is a medium-sized, high density prehistoric site located on the edge of the uplands west of White Oak Creek. The presence of several sherds from a possible Pease Brushed-Incised vessel suggests an occupation during the Middle-Late Caddoan period. Based on its size and subsurface density, the site has been classified as a high intensity occupation. The site appears to have good contextual integrity and some faunal preservation; it is judged to have excellent research potential. It is therefore recommended that site 41TT674 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT675

Site 41TT675 is a medium-sized, low density prehistoric site located on the edge of the uplands immediately south of White Oak Creek. The site is at an elevation of 84 m amsl and encompasses an estimated 4,200 m² (120-x-35 m). The soil in the area is mapped as Bernaldo fine sandy loam (for a description of this soil, see Chapter 2). The site is primarily in a pasture with a few isolated trees, although there is a dense hardwood forest at the base of the ridge on the southeast side. Vegetation observed includes mixed grasses, bullnettle, honey locust, mimosa, and persimmon in the pasture; and red oak, white oak, sweetgum, hickory, elm, and dogwood in the forest. Several sources of disturbance were noted on the site. Artificial impacts include a two-track road that passes through the site, the probable clearing of the area by heavy machinery, and, although it does not physically cross the site, a fence line. Natural impacts include slope wash and bioturbation. Contextual integrity of the site is thus considered to be fair.

Thirteen shovel tests were excavated in and around site 41TT675, with seven located within the site boundary (Figure 71). Ten artifacts were recovered, for an average of 1.4 artifacts per onsite shovel test. These artifacts were found up to 60 cm below surface. A generalized soil profile for the site consists of a yellowish brown to brownish yellow (10YR 5/4 to 10YR 6/6) sandy loam, up to 80 cm deep. A dark yellowish brown to brownish yellow (10YR 4/5 to 10YR 6/6) silty clay subsoil was found in some of the units and began as

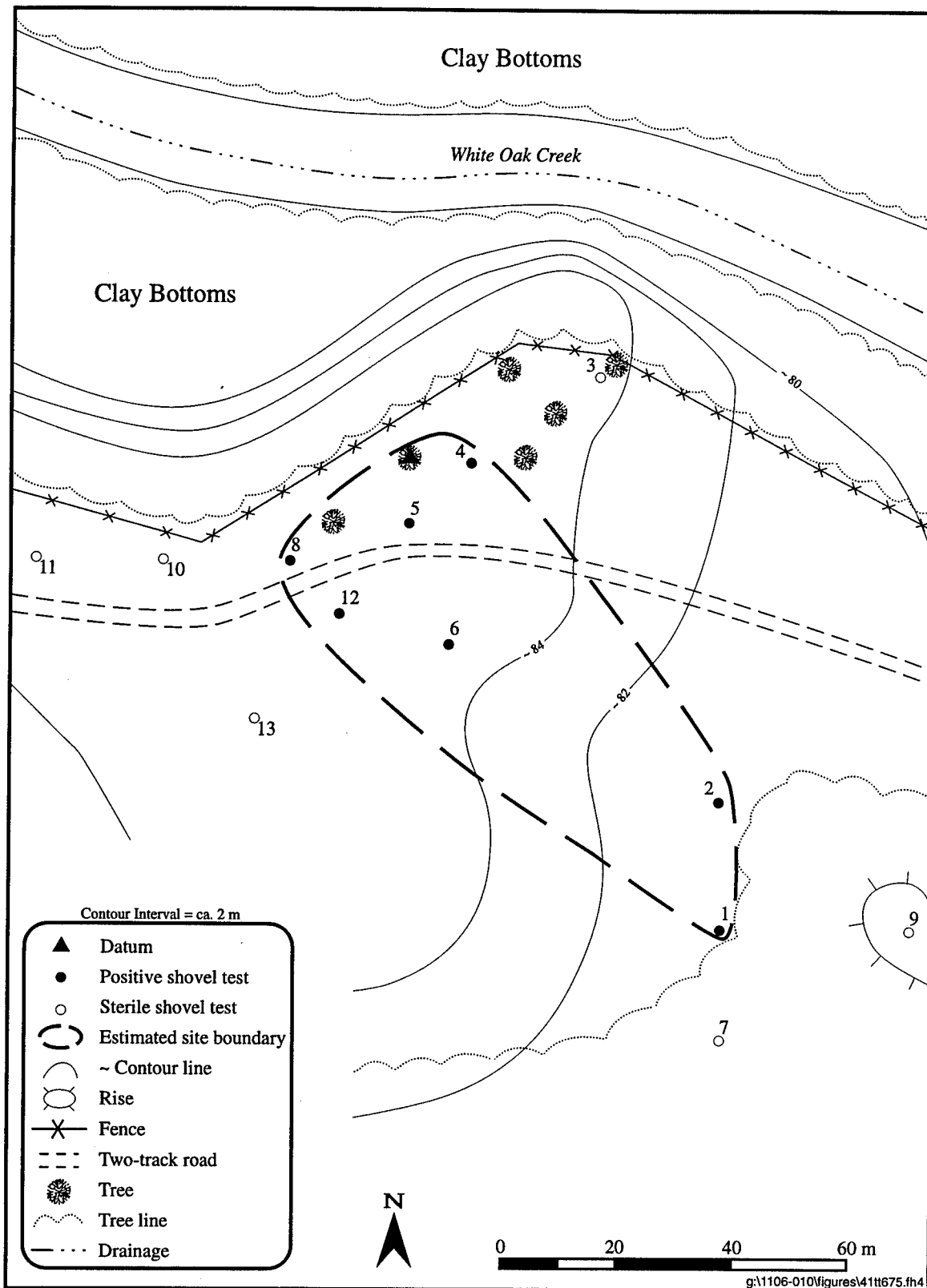


Figure 71. Pace and compass map of site 41TT675.

high as 50 cm below the surface. The artifact sample recovered from this site includes two prehistoric ceramic sherds and eight pieces of unmodified debitage. The two prehistoric sherds are both body fragments, broken longitudinally, and are tempered with clay/grog. Neither shows any signs of decoration but they are small. Since neither is a complete sherd, vessel wall thicknesses cannot be obtained. The unmodified debitage consists of two secondary flakes, two tertiary flakes, three bifacial thinning flakes, and one piece of shatter. The main raw material type in the lithic debitage is chert (n=4), with the remainder being quartzite (n=2) and Ogallala quartzite (n=2). The flakes are generally small, with five from 6.3 to 9.5 mm and three from 9.5 to 12.5 mm in size.

In summary, site 41TT675 is a medium-sized, low density prehistoric site located on the edge of the uplands immediately south of White Oak Creek. The presence of a few ceramic sherds on the site indicates either an Early Ceramic or Caddoan occupation. Despite its medium size, this site has been classified as a low intensity occupation in deference to its very low subsurface artifact density and the limited number of artifacts and their lack of variety. Given the fair contextual integrity of the site, together with its medium size, low density, and lack of variety within the artifact sample, research potential is believed to be low. It is therefore recommended that site 41TT675 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41TT676

Site 41TT676 is a small, low density prehistoric site located on the edge of the uplands south and east of White Oak Creek. The site is at an elevation of 84 m amsl and covers about 1,600 m² (80-x-20 m). The soil in the area is mapped as Estes clay loam, frequently flooded (for a description of this soil, see Chapter 2). The site is in dense forest, north of a fence line the other side of which is a heavily overgrown pasture. Vegetation noted at the site included red oak, white oak, elm, sweetgum, hickory, and dogwood, along with mixed grasses. A thick mat of grasses and leaves prevented good surface visibility. Bioturbation was the only disturbance noted at the site. Contextual integrity of the site is thus considered to be good.

Twelve shovel tests were excavated in and around site 41TT676, six of which were located within the site boundaries (Figure 72). Thirteen artifacts were collected at the site, for an average density of 2.2 artifacts per onsite shovel test. Artifacts were found up to 60 cm below surface. The soil profile consists of a dark yellowish brown to yellowish brown (10YR 4/6 to 10YR 5/6) sandy loam, up to 80 cm. The subsoil consisted of dark yellowish brown to yellowish brown (10YR 4/6 to 10YR 5/6) silty clay and was encountered between 40 and 80 cm below surface. The artifact sample recovered from the site consists of three prehistoric ceramic sherds and 10 pieces of unmodified lithic debitage. The three sherds are all from Shovel Test 6. Two are undecorated body sherds from the same vessel. The third is a body sherd decorated with fingernail punctation. All are tempered with clay/grog, and all are 7.0 mm thick. The sample of unmodified debitage consists of two secondary flakes, one tertiary flake, six bifacial thinning flakes, and one piece of shatter. The main raw material among the lithic debitage is chert (n=5), followed by Ogallala quartzite (n=3) and quartzite (n=2). The lithics vary in size, with one less than 6.3 mm, three from 6.3 to 9.5 mm, three from 9.5 to 12.5 mm, and three from 12.5 to 19 mm in size.

In summary, site 41TT676 is a small, low density prehistoric site located on the edge of the uplands south of White Oak Creek. The presence of a few ceramic sherds on the site indicates either an Early Ceramic or a Caddoan period date of occupation. Considering the site's small size and low subsurface density, it is classified as a low intensity occupation. Despite its small size and apparently low artifact density, the site has good contextual integrity and may have some research potential. It is therefore recommended that site 41TT676 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

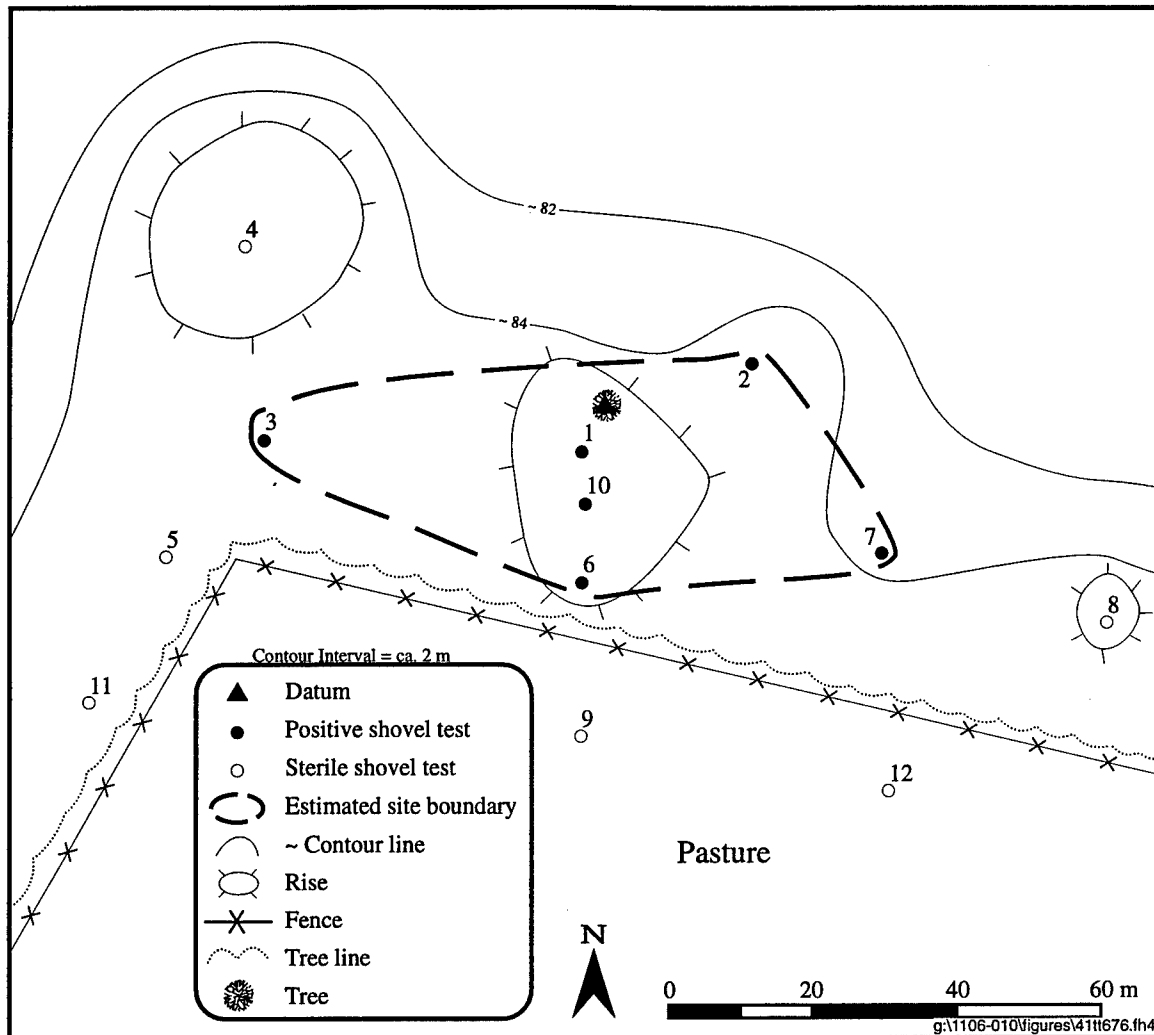


Figure 72. Pace and compass map of site 41TT676.

Site 41TT677

Site 41TT677 is a very large, moderate density prehistoric site located on an upland rise in the floodplain of White Oak Creek. The site is at an elevation of 79 m amsl and covers about 19,200 m² (160-x-120 m). The soil in the area is mapped as Estes clay loam, frequently flooded (for a description of this soil, see Chapter 2). The site area is covered by a moderately dense hardwood forest dominated by red oak, sweetgum, hickory, elm, box elder, hackberry, dogwood, and bamboo cane. A thick mat of leaves and grass prevented good surface visibility at the site. Bioturbation was the only disturbance noted. Contextual integrity of the site is thus considered to be good.

Fifteen shovel tests were excavated in and around site 41TT677, 13 of which were actually within the site boundary (Figure 73). In all, 39 artifacts were recovered from the site, for an average of 3.0 artifacts per onsite shovel test. Artifacts were found up to 100 cm below surface. The soil profile revealed through shovel testing consisted of a dark yellowish brown to light yellowish brown (10YR 4/4 to 10YR 6/4) sandy loam, up to 80 cm deep. A dark yellowish brown (10YR 4/4) clay subsoil was found only in Shovel Tests 12, 13, and 15. The artifact sample recovered from the site consists of one prehistoric ceramic sherd and

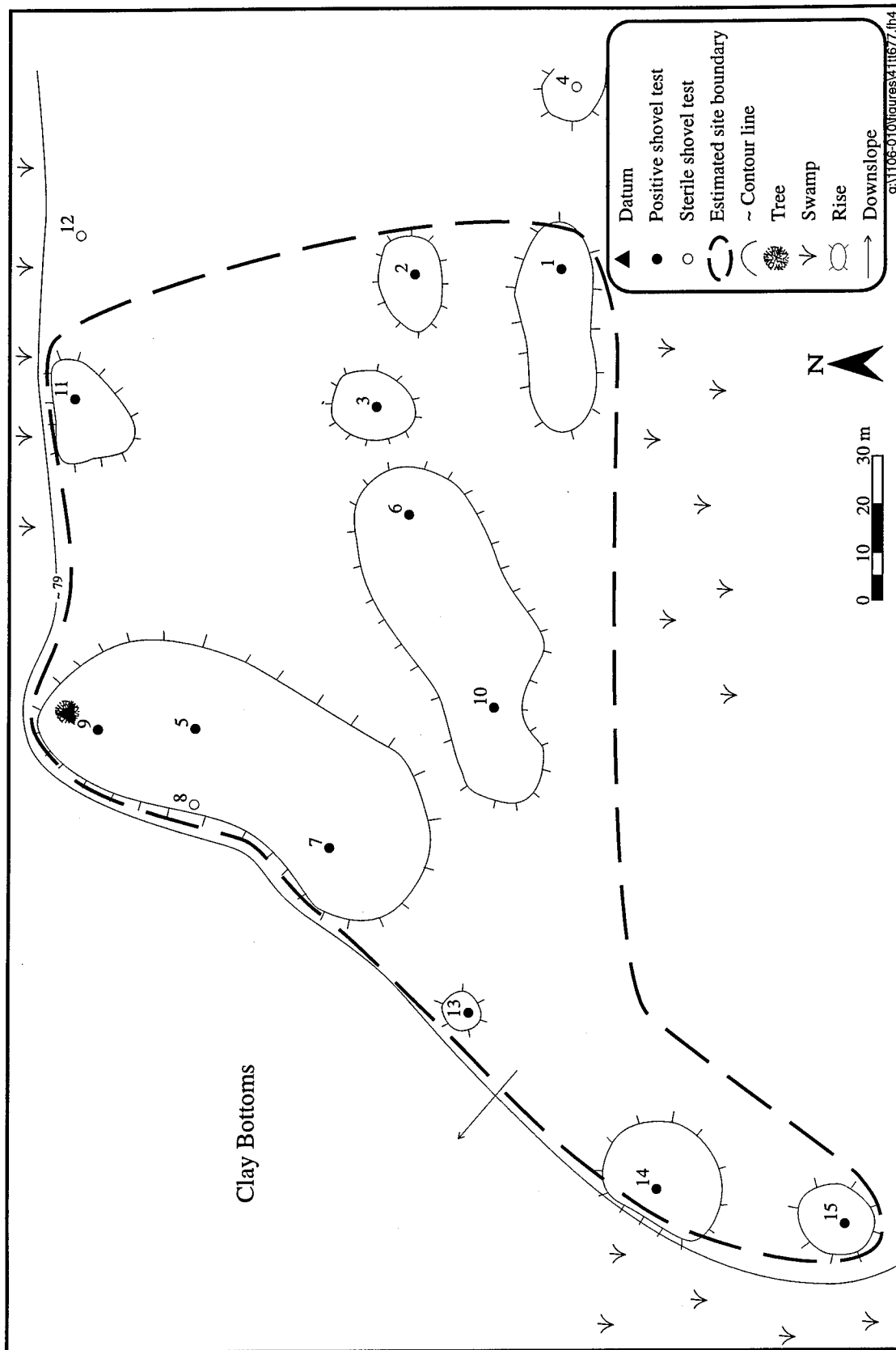


Figure 73. Pace and compass map of site 41TT677.

38 pieces of unmodified lithic debitage. The single prehistoric ceramic from the site is a plain body sherd with clay/grog temper. It is 8.0 mm thick and was recovered from Shovel Test 9. The sample of unmodified debitage consists of primary flakes (n=4), secondary flakes (n=10), tertiary flakes (n=9), and bifacial thinning flakes (n=15). Raw material types among the lithic debitage include quartzite (n=15), Ogallala quartzite (n=11), chert (n=11), and silicified wood (n=1). The flakes tend to be small in size, with eight less than 6.3 mm, 21 ranging from 6.3 to 9.5 mm, seven from 9.5 to 12.5, one from 12.5 to 19 mm, and one from 19 to 25 mm in size.

In summary, site 41TT677 is a very large, moderate density prehistoric site located on an upland remnant along White Oak Creek. The presence of a ceramic sherd on the site suggests an occupation dating either to the Early Ceramic or the Caddoan period. Considering its large size and the moderate subsurface artifact density, the site is classified as a high intensity occupation. Given its size and density, together with its good contextual integrity, it is suggested that site 41TT677 may have a good research potential. Therefore, it is recommended that the site be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT678

Site 41TT678 is a small, low density prehistoric site located on the edge of the uplands above an unnamed drainage. The site is about 250 m southwest of a low-lying part of the floodplain which appears to be a former channel of White Oak Creek. It is at an elevation of 80 m amsl and covers about 1,050 m² (70-x-15 m). The soil in the area is mapped as Estes clay loam, frequently flooded (for a description of this soil, see Chapter 2). The site is covered by a moderately dense hardwood forest and understory, composed of red oak, sweetgum, hickory, hackberry, honey locust, elm, and dogwood. Once again, there was a dense leaf mat that did not allow good surface visibility. A small amount of bioturbation was noted at the site and a two-track road passes through it. Contextual integrity is believed to be only fair.

Twelve shovel tests were excavated in and around site 41TT678, with four actually within the site (Figure 74). Five artifacts were collected, for an average density of 1.3 artifacts per onsite shovel test. Artifacts were found up to 40 cm below surface. The generalized soil profile observed during shovel testing began with a yellowish brown to light yellowish brown (10YR 5/4 to 10YR 6/4) loamy sand, up to 80 cm deep. In some units, a strong brown (7.5YR 5/6) sandy clay underlay this strata. In Shovel Tests 11 and 12, a radically different soil profile was observed, consisting of a very dark gray to grayish brown silty clay about 20 cm thick, underlain by a brown (10YR 5/3) silty clay. The artifact sample from site 41TT678 consists of five pieces of unmodified debitage. This sample includes three secondary flakes, a tertiary flake, and a bifacial thinning flake. Raw material includes Ogallala quartzite (n=2), quartzite (n=2), and chert (n=1). The artifacts vary in size, with one less than 6.3 mm in size, two from 9.5 to 12.5 mm, and two from 12.5 to 19 mm in size.

In summary, site 41TT678 is a small, low density site of an unknown prehistoric period, located along the edge of the uplands. Based on its small size and low subsurface artifact density, the site is classified as a low intensity occupation. Since the site has only fair contextual integrity, its potential for research is believed to be limited. It is therefore recommended that site 41TT678 be considered ineligible for inclusion in the NRHP and that no further work be done there.

Site 41TT679

Site 41TT679 is a small, low density prehistoric site located on the edge of the uplands above a small intermittent drainage. This drainage might possibly be a relict channel of White Oak Creek. The site is at

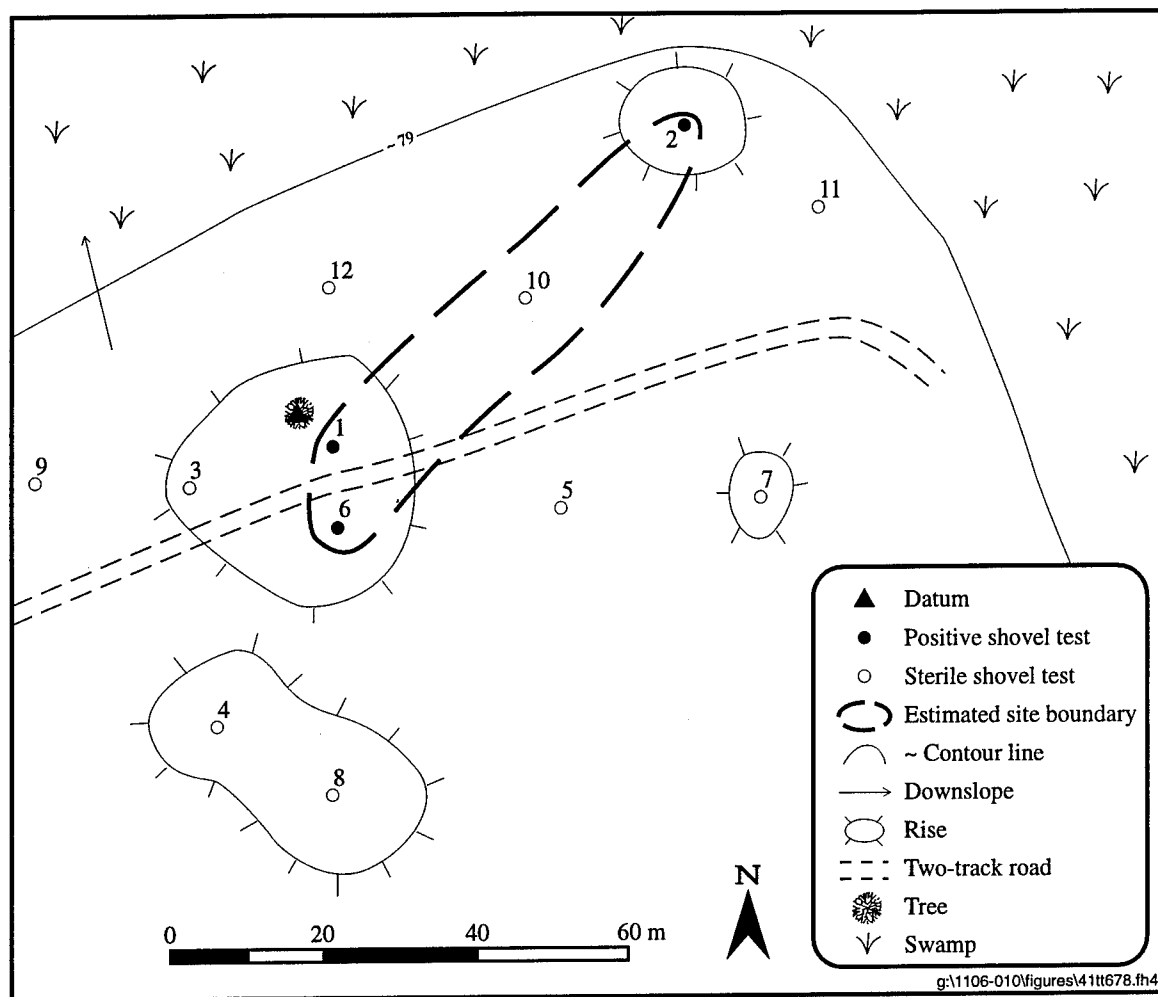


Figure 74. Pace and compass map of site 41TT678.

an elevation of 81 m amsl and covers an estimated area of 2,200 m² (110-x-20 m). The area is mapped as Wolfpen loamy fine sand, 2 to 5 percent slopes (for a description of this soil, see Chapter 2). The site is covered by a dense forest of young hardwood trees, none of which appeared to be more than 20 years old. Types of vegetation observed include red oak, sweetgum, elm, hickory, sassafras, hackberry, dogwood, greenbriar, poison ivy, poison oak, and muscadine. A thick leaf mat prevented good surface visibility. A small amount of bioturbation was noted at the site, thus contextual integrity is believed to be good.

Twelve shovel tests were excavated in and around site 41TT679, with six of these units located within the site boundary (Figure 75). In all, 12 artifacts were collected from the site, for an average density of 2.0 artifacts per onsite shovel test. Artifacts were recovered down to 60 cm below surface in Shovel Tests 3 and 4. The soil profile on the site begins with a yellowish brown (10YR 5/4 to 10YR 5/8) sandy loam, up to 80 cm deep, underlain by a dark yellowish brown to yellowish brown (10YR 4/6 to 10YR 5/8) sandy clay.

North of the site, in the floodplain of White Oak Creek, Shovel Test 11 had a very dark grayish brown (10YR 3/2) clay as the surface layer. The artifact sample from this site consisted of one unfinished biface and 11 pieces of unmodified debitage. The single unfinished biface fragment is made of Ogallala quartzite;

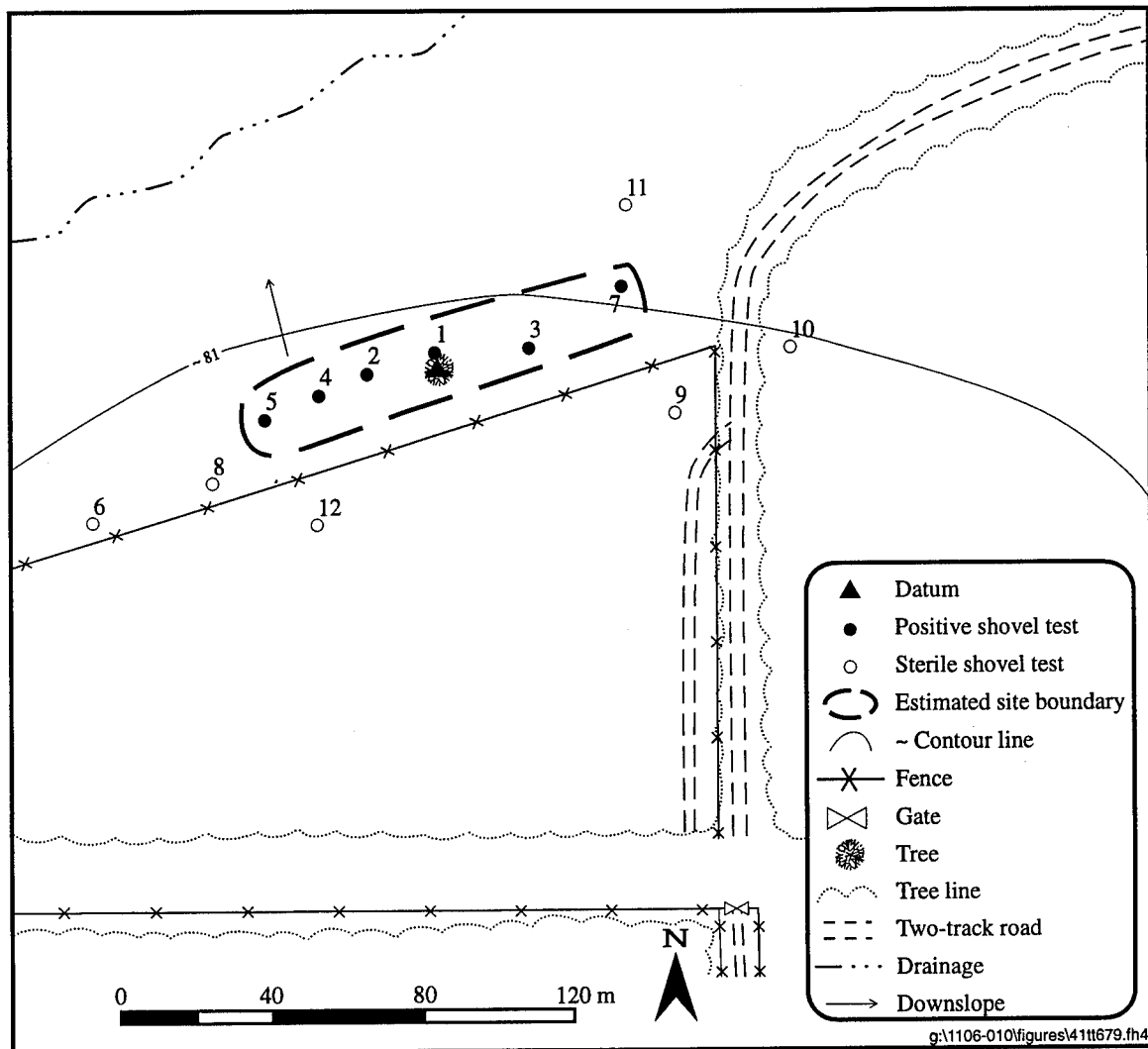


Figure 75. Pace and compass map of site 41TT679.

weighs 6 grams, and measures 31 mm long, 20 mm wide, and 13 mm thick. The presence of a coarse-grained inclusion appears to have been the reason that the reduction of this piece was terminated. The unmodified debitage consists of two primary flakes, five secondary flakes, two tertiary flakes, and two bifacial thinning flakes. The flakes are primarily quartzite ($n=8$), with the remainder being chert ($n=3$). The flakes vary in size, with two less than 6.3 mm in size, four from 6.3 to 9.5 mm, two from 9.5 to 12.5 mm, one from 12.5 to 19 mm, and two larger than 25 mm in size.

In summary, site 41TT679 is a small, low density site of an unknown prehistoric period, located on the edge of the uplands above a small intermittent drainage. Based on its small size and low subsurface artifact density, it is classified as a low intensity occupation. Despite its limited size and apparent low subsurface artifact density, the site has good contextual integrity and may retain good research potential. It is therefore recommended that site 41TT679 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

Site 41TT680

Site 41TT680 is a small, moderate density prehistoric site located on the edge of the uplands south of White Oak Creek. An unnamed, intermittent drainage, which appears to be a former channel of White Oak Creek, is about 200 m north of the site. The site is at an elevation of 91 m amsl and covers an estimated 2,125 m² (85-x-25 m). This area is mapped as being on Woodtell fine sandy loam, 5 to 20 percent slopes (for a description of this soil, see Chapter 2). The site area has recently been replanted in pines. Extensive disturbance was noted at the site due to plowing and planting of the pine trees, and clearing and construction of a fence. Bioturbation was also present on the site. Given these disturbances, the contextual integrity of the site is judged to be fair.

A total of 12 shovel tests was excavated at site 41TT680, seven of which were within the site boundary (Figure 76). Twenty-six artifacts were collected at the site, for an average density of 3.7 artifacts per onsite shovel test. Artifacts were recovered to a depth of 60 cm below surface in Shovel Tests 1 and 7. The general soil profile observed during shovel testing consisted of a yellowish brown to brownish yellow (10YR 5/4 to 10YR 6/6) sandy loam up to 80 cm deep, underlain by a strong brown to yellowish brown (7.5YR 5/6 to 10YR 5/6) sandy clay. The artifact sample recovered from this site includes one finished bifacial tool, three utilized flakes, and 22 pieces of unmodified debitage. The finished bifacial tool consists of a dart point fragment, including much of the body and tip but lacking the base. This unidentified point fragment is made of chert; weighs 1.5 grams; and measures 26 mm long, 15 mm wide, and 5 mm thick. It has a biconvex cross-section and straight lateral edges. Two of the three utilized flakes were originally secondary flakes. They were both recovered from Shovel Test 2. One of these is chert; weighs 1.3 grams; and measures 18 mm long, 15 mm wide, and 5 mm thick. One of the three edges on this piece has been utilized. The other utilized secondary flake is made of Ogallala quartzite; weighs .7 gram; and measures 18 mm long, 13 mm wide, and 4 mm thick. Microflaking indicative of use appears on the ventrally curved straight distal edge. The remaining utilized flake is a bifacial thinning flake, which is also made of Ogallala quartzite. It weighs 1.0 gram, and measures 14 mm long, 19 mm wide, and 5 mm thick. Again, microflaking indicative of use appears on the ventrally curved distal edge. The sample of unmodified debitage consists of three primary flakes, five secondary flakes, 10 tertiary flakes, three bifacial thinning flakes, and one piece of shatter. Raw material is primarily composed of quartzite (n=14), with lesser amounts of chert (n=4) and Ogallala quartzite (n=4). The flakes tend to be small, with two less than 6.3 mm, 14 ranging from 6.3 to 9.5 mm, three from 9.5 to 12.5 mm, and three from 12.5 to 19.5 mm in size.

In summary, site 41TT680 is a small, moderate density prehistoric site located on the edge of the uplands above a former channel of White Oak Creek. The presence of an apparent dart point fragment with no ceramics suggests an Archaic occupation. Despite its small size, site 41TT680 has been classified as a high intensity occupation based on its subsurface artifact density and the relatively large sample of artifacts recovered. Despite the site's fair contextual integrity and small size, it is felt that it may possess good research potential, especially if it should prove to be an unmixed Archaic site. Therefore, it is recommended that site 41TT680 be considered of unknown eligibility for inclusion in the NRHP and that it be preserved until test excavations designed to determine its NRHP status can be undertaken.

LOCALITY DESCRIPTIONS

Locality 1

Locality 1 is located on a small upland remnant in the Bowie County portion of the Sulphur River floodplain. It is just south of a two-track road which diverges from Chicken Ranch Road and leads into the floodplain. It consists of one unmodified flake found in a single shovel test. The artifact is a quartzite tertiary flake, less

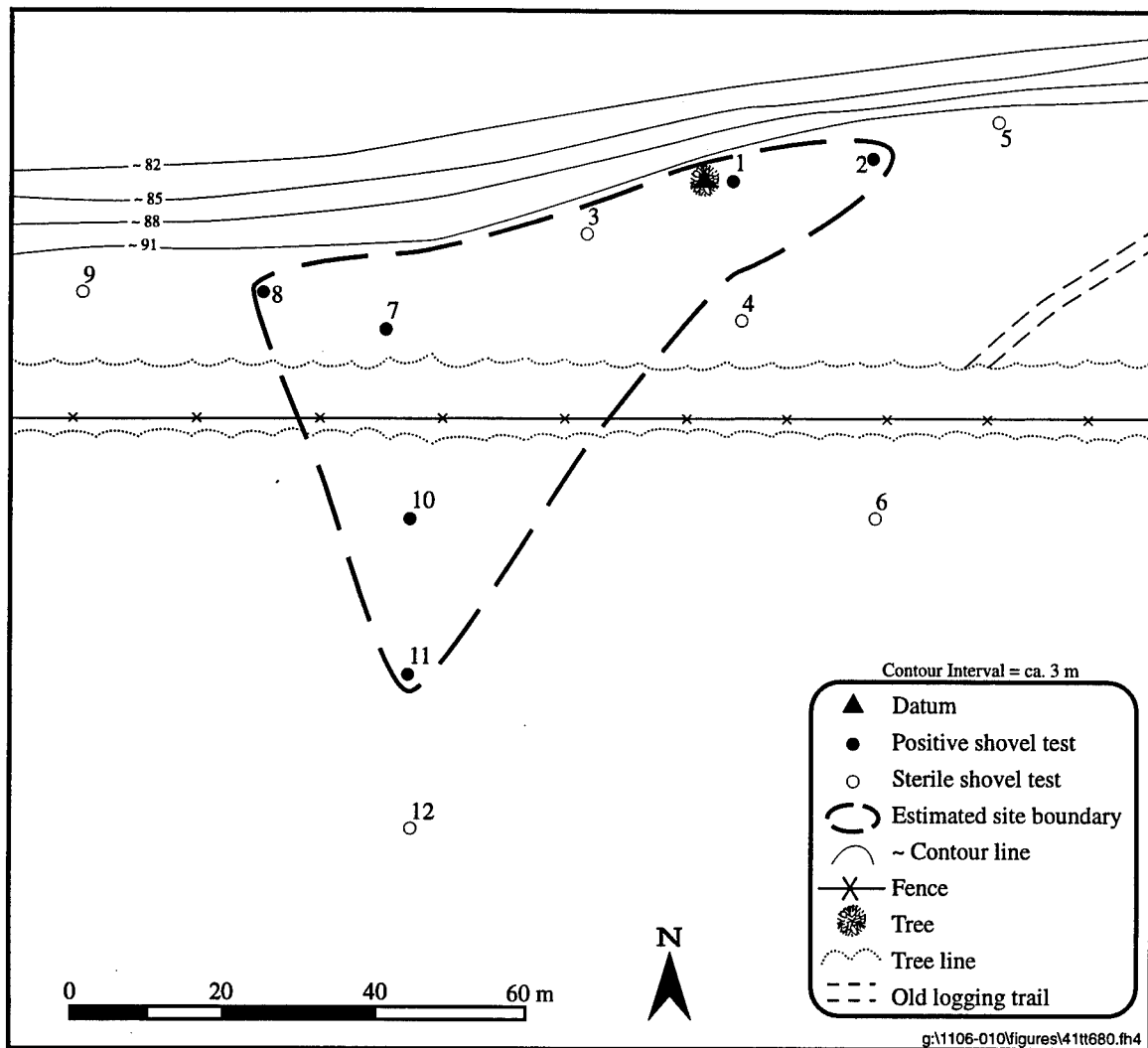


Figure 76. Pace and compass map of site 41TT680.

than 6.3 mm in size. An additional four shovel tests were excavated in the vicinity, but no further artifacts were discovered.

Locality 2

Locality 2 is located on the edge of an upland remnant in the Bowie County portion of the Sulphur River floodplain. It is just south of a two-track road which diverges from Chicken Ranch Road and leads into the floodplain. It consists of two unmodified flakes found in a shovel test. These consisted of a tertiary flake and a bifacial thinning flake, both chert. They both measured between 6.3 and 9.5 mm in size. Further shovel testing in the vicinity did not recover any additional artifacts.

Locality 3

Locality 3 is located on a small natural rise about 100 m east of site 41BW554. It consists of two unmodified flakes found in a shovel test. Further shovel testing in the vicinity did not recover any additional artifacts.

Locality 4

Locality 4 is located above Murphy Branch in Morris County. It was identified by one unmodified flake found in a shovel test. Further shovel testing in the vicinity did not recover any additional artifacts.

Locality 5

Locality 5 is located on the edge of the uplands north of White Oak Creek in Morris County. It was identified when an unmodified flake and a biface fragment were found in a shovel test. Further shovel testing in the vicinity did not recover any additional artifacts.

Locality 6

Locality 6 is located on the edge of the uplands north of White Oak Creek in Morris County. It was identified by an unmodified flake found in a shovel test. Further shovel testing in the vicinity did not recover any additional artifacts.

Locality 7

Locality 7 is located on top of a knoll in the uplands south of White Oak Creek in Morris County. It consists of two unmodified flakes recovered from one shovel test. Both of these were tertiary flakes made of chert, with one measuring from 6.3 to 9.5 mm in size and the other less than 6.3 mm. Further investigation of the area failed to produce any additional artifacts.

Locality 8

Locality 8 is located on the eastern edge of an upland remnant in the Sulphur River floodplain which contains site 41MX51. An unmodified chert primary flake, between 6.3 and 9.5 mm in size, was recovered from a shovel test on a low natural rise. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 9

Locality 9 is located along a narrow ridge which projects into the floodplain north of White Oak Creek in Morris County. The locality consists of one unmodified flake found in a single shovel test. Another five shovel tests were excavated in the vicinity, but no other artifacts were found.

Locality 10

Locality 10 is located a short distance north of Locality 9, along the same ridge, in Morris County. Two unmodified silicified wood tertiary flakes, both between 6.3 and 9.5 mm in size, were found in a single shovel test. Another four shovel tests were excavated in a cruciform pattern around the original unit, but all were sterile.

Locality 11

Locality 11 is located on an upland terrace overlooking Horse Creek in Titus County. It was identified by two unmodified flakes from a single shovel test. The two artifacts were both quartzite tertiary flakes, one ranging from 9.5 to 12.5 mm in size and the other less than 6.3 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 12

Locality 12 is located on a knoll immediately above White Oak Creek near the western border of Morris County. Two unmodified tertiary flakes were found in a single shovel test. One was silicified wood and measured from 12.5 to 19 mm in size. The other was quartzite and ranged from 6.3 to 9.5 mm in size. An additional five shovel tests were excavated in the vicinity but were sterile.

Locality 13

Locality 13 is located on the uplands south of White Oak Creek in Morris County. It consists of one unmodified flake found in a single shovel test. Shovel testing in this area failed to uncover any additional artifacts.

Locality 14

Locality 14 is located on the edge of the uplands overlooking a small, unnamed tributary of White Oak Creek near the western edge of Morris County. It consists of two unmodified flakes found in a single shovel test. Both flakes are quartzite. One is a primary flake, measuring from 12.5 to 19 mm in size, and the other is a bifacial thinning flake, ranging from 9.5 to 12.5 mm in size. Although five more shovel tests were excavated in the vicinity, all were sterile.

Locality 15

Locality 15 is located on the uplands north of an unnamed, intermittent tributary of White Oak Creek near the western edge of Morris County. It consists of one unmodified flake found in a single shovel test. This artifact is a chert tertiary flake, less than 6.3 mm in size. Another five shovel tests were excavated in the vicinity. All proved to be sterile.

Locality 16

Locality 16 is located on a small mound in the floodplain north of White Oak Creek just east of the approximate boundary between Titus and Morris counties. It consists of one unmodified flake found in the

backdirt of an animal burrow. The chert tertiary flake ranges from 6.3 to 9.5 mm in size. Six shovel tests were excavated in the vicinity, but all were sterile.

Locality 17

Locality 17 is located north of Snake Creek in Titus County. It consists of one unmodified flake found in a single shovel test. The chert tertiary flake ranges from 6.3 to 9.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 18

Locality 18 is located in the floodplain of White Oak Creek, on the opposite side of the channel from Hill Hole, in Titus County. It consists of one unmodified flake found in a single shovel test. The artifact is a silicified wood tertiary flake, 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 19

Locality 19 is located on the edge of the floodplain south of White Oak Creek, in the vicinity of Little Grassy Lake and Duck Slash, in Titus County. It consists of two unmodified flakes from one shovel test. Both flakes are quartzite, a secondary flake, ranging from 9.5 to 12.5 mm in size, and a tertiary flake, 6.3 to 9.5 mm in size. Although a total of six shovel tests was excavated at Locality 19, no other artifacts were uncovered.

Locality 20

Locality 20 is located on an upland remnant in the floodplain south of White Oak Creek in Titus County. It consists of three unmodified flakes found in a single shovel test. The artifacts were an Ogallala quartzite tertiary flake measuring less than 6.3 mm in size; a chert tertiary flake, 6.3 to 9.5 mm in size; and a chert bifacial thinning flake, 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 21

Locality 21 is located on the edge of the floodplain south of White Oak Creek in Titus County. It was identified when an unmodified chert tertiary flake ranging from 6.3 to 9.5 mm in size was found in a shovel test. Another six shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 22

Locality 22 is located in the uplands south of White Oak Creek in Titus County. It was defined when an unmodified quartzite bifacial thinning flake ranging from 9.5 to 12.5 mm in size was collected from a shovel test on a small natural rise. Although another five shovel tests were excavated nearby, no other artifacts were recovered.

Locality 23

Locality 23 is located on the edge of an upland remnant in the floodplain of the Sulphur River in Morris County. It consists of one unmodified flake found in a shovel test. An additional five shovel tests were excavated in the vicinity, but these units were sterile.

Locality 24

Locality 24 is located on the western edge of an upland remnant in the floodplain of the Sulphur River in Morris County. It consists of one unmodified flake found in a shovel test. The artifact is a quartzite secondary flake, ranging from 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 25

Locality 25 is located on the edge of an upland remnant in the floodplain of the Sulphur River in Morris County. It consists of one unmodified flake found in a shovel test. The artifact recovered was an Ogallala quartzite bifacial thinning flake, ranging from 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 26

Locality 26 is located in the uplands south of White Oak Creek in Morris County. It consists of one unmodified flake found in a shovel test. The artifact recovered was a chert tertiary flake, less than 6.3 mm in size. Although another five shovel tests were excavated in the vicinity of this unit, all were sterile.

Locality 27

Locality 27 is located on a small natural rise on the edge of the uplands north of the White Oak Creek bottoms, just west of Highway 259, in Morris County. It consists of two unmodified flakes found in two shovel tests. The two artifacts recovered from the site were a quartzite bifacial thinning flake, ranging from 9.5 to 12.5 mm in size, and an Ogallala quartzite secondary flake, 6.3 to 9.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 28

Locality 28 is located on an upland ridge north of White Oak Creek in Morris County. It consists of three prehistoric sherds recovered in a single shovel test. All three of these were heavily eroded, undecorated body sherds, with clay/grog temper. They were 5.0, 6.0, and 7.0 mm thick, respectively. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 29

Locality 29 is located on the same upland ridge as Locality 28, in Morris County. It was to the southeast of the previous locality and further downslope. It consists of two unmodified flakes found in a single shovel test. The artifacts are two bifacial thinning flakes, one of quartzite and one of Ogallala quartzite. Both

flakes are between 6.3 and 9.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 30

Locality 30 is located on a large natural rise at the northern edge of the White Oak Creek floodplain in Morris County. It consists of one unmodified flake found in a shovel test. The artifact is a silicified wood primary flake, between 6.3 and 9.5 mm in size. Five more shovel tests were excavated in the vicinity, but no other artifacts were uncovered.

Locality 31

Locality 31 is located on a small natural rise near the base of an upland slope west of Buck Creek, in Morris County. A single unmodified flake, a quartzite bifacial thinning flake between 6.3 and 9.5 mm in size, was found in a shovel test. Another four shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 32

Locality 32 is located at the edge of an upland ridge immediately east of Interstate Highway 30, in Morris County. It is north of White Oak Creek. It consists of one unmodified flake found in a shovel test. The artifact is a chert bifacial thinning flake, 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but no other cultural remains were found.

Locality 33

Locality 33 is located on the edge of the uplands just east of Interstate Highway 30 and north of White Oak Creek, in Morris County. It consists of a uniface and two unmodified flakes found in a single shovel test. The chert uniface is a notch; measures 20 mm long, 19 mm wide, and 4 mm thick; and weighs 1.3 grams. Both of the flakes are Ogallala quartzite; one is a secondary flake between 6.3 and 9.5 mm in size, while the other is a bifacial thinning flake, 9.5 to 12.5 mm in size. Another five shovel tests were excavated in the vicinity, but all proved to be sterile.

Locality 34

Locality 34 is located on the edge of an upland ridge immediately east of Interstate Highway 30 and north of White Oak Creek, in Morris County. It was defined when three unmodified flakes were found in a shovel test. Two of the artifacts, a primary flake between 12.5 and 19 mm in size and a secondary flake from 6.3 to 9.5 mm, were made of Ogallala quartzite. The third artifact was a chert tertiary flake, 6.3 to 9.5 mm in size. Although five shovel tests were excavated in the surrounding area, no other artifacts were uncovered.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

by
David White and Maynard B. Cliff

A discussion and assessment of the National Register of Historic Places (NRHP) eligibility of each cultural property recorded during the 1993-1994 survey of portions of the White Oak Creek Mitigation Area (WOCMA) were presented along with the description of each property in Chapter 5. The present chapter is intended to present a more detailed discussion of the NRHP criteria and a summary of the assessments of all of the identified cultural properties in relation to their potential for fulfilling these criteria. In addition, the recommendations for the future treatment of these resources, initially presented in Chapter 5, are summarized.

COMMENTS ON NRHP ELIGIBILITY CRITERIA

Full assessment of NRHP potential is admittedly preliminary during this phase of investigations, but each property may be evaluated in relation to the criteria set forth in 36 CFR 60.4. Of particular importance is the requirement that an archeological property considered eligible for inclusion in the NRHP be capable of yielding information important to our understanding of prehistory or history. In order to identify the types of information which may be considered important for this purpose, a project-specific research design has been developed for the WOCMA area (Peter et al. 1990). In that document, a series of research problems specific to WOCMA, at the regional, local, and project-specific level, were set forth.

These include:

- Site Detection;
- Paleoenvironmental Reconstruction;
- Culture History;
- Prehistoric Settlement-Subsistence Systems;
- Prehistoric Lithic Raw Material Use Patterns;
- Prehistoric Technology;
- Historic Period Native American Sites;
- Upland and Lowland South Settlement-Subsistence Patterns during the Historic Period;
- The Historic Lumber Industry;
- Historic Community Patterning; and
- The Role of Historic Transportation Systems during the Historic Period.

In addition, the Texas Historical Commission (THC) has identified five broad, regional historic contexts, or research themes, as having priority for prehistoric studies in Northeast Texas (Kenmotsu and Perttula, eds. 1993). These are:

- Quaternary Environments and Archeology in Northeastern Texas;
- Hunter-Gatherer Mobility in Northeast Texas, 10,000 B.C. to 200 B.C.;
- The Emergence of Sedentism in the Northeast Texas Archeological Region, ca. 500 B.C. to A.D. 1000;
- The Development of Agriculture in Northeast Texas before A.D. 1600; and
- Effects of European Contact on Native and Immigrant Indians in Northeast Texas, A.D. 1540 - 1859.

At about the same time as these prehistoric contexts were being developed, the Advisory Committee to the National Register Programs Office of the THC identified nine broad research themes for the historic period throughout Texas as a whole (Jones, 1990). These include:

- Agriculture (1680-1945);
- Arts (1680-1945);
- Community and Regional Development (1680-1945);
- Exploration and Settlement (ca. 1533-1945);
- Military (1533-1945);
- Natural Resources Exploitation and Development (1628-1945);
- Politics and Government (1680-1945);
- Transportation (1533-1945); and
- Education (1680-1945).

Thus, the first criteria of significance for any archeological property at WOCMA is its capability to yield information relevant to one of these research themes. In addition, the following criteria also have been applied to facilitate the evaluation of cultural resources within WOCMA:

1. potential for interpretation of culture history or local sequences;
2. potential for interpretation of intersite or intrasite patterning;
3. potential for interpretation of technology or primitive industries; and/or
4. existence as an example of a unique or rare site type.

Whether or not specific properties exhibit such potential or contain data relevant to any particular research theme is dependent upon a precondition of contextual integrity of the archeological deposits. For example, a prehistoric site that was buried by sediment within a levee of the Sulphur River has a far greater potential for containing undisturbed deposits than one located on a nonaggrading upland surface. However, the nature of contextual integrity, as it affects research potential of a property, also must be viewed as relative, since different research problems require different types of data.

For each cultural resource property, the intensive pedestrian surveys conducted at WOCMA are designed to provide a preliminary assessment of:

1. the nature of the cultural deposits (i.e., their size, density, depth, and the range of artifactual and feature information available);
2. the integrity of the cultural deposits (i.e., is the site undisturbed, bioturbated, deflated, etc.); and
3. the context of the cultural deposits in relation to both the natural and cultural environment of the appropriate time period.

The fundamental information derived from the survey was used to evaluate the sites and their research potential, that is, their potential for increasing our knowledge of past lifeways, contributing to the resolution of regionally pertinent research questions, or containing information relevant to any of the above research themes or problems. The research themes that seem most relevant to the cultural resource properties recorded by the 1993-1994 WOCMA survey are listed below. The first five themes are pertinent to the prehistoric properties, while the final theme is the only one which seems relevant to the few historic components recorded by the current survey:

1. Paleoenvironmental Reconstruction;
2. Culture History;
3. Prehistoric Settlement-Subsistence Systems;
4. Prehistoric Lithic Raw Material Use Patterns;
5. Prehistoric Technology; and
6. Historic Community Patterning.

Pertinent research questions, taken from the WOCMA Research Design (Peter et al. 1990), for the prehistoric period include:

- What is the potential of the area for contributing information critical to our understanding of paleoenvironmental shifts in Northeast Texas?
- What sociocultural trends can be identified during the long Archaic period in Northeast Texas?
- Can the time frame for localized developments, such as the beginning of incipient agriculture and the development of sedentism, be refined through the use of radiocarbon dates, cultural stratification, single component deposits, horizontal separation of components, or other methods of chronological control?
- Can *in situ* archeological deposits dating to the Paleo-Indian, Archaic, Early Ceramic, and Caddoan periods that can provide data for the reconstruction of settlement-subsistence patterns (e.g., topographic and environmental parameters, variety and abundance of food residue, functional variability of tool and ceramic assemblages, intersite variability of subsistence-related features and ceremonial structures, mortuary patterns, and bioarcheological data) be located?
- Is the Early Ceramic occupation of the lower Sulphur basin actually represented by villages in the floodplains or on the terraces of larger streams, and smaller components in the uplands, as has been suggested?
- What is the relationship between Early Ceramic period sites along the Sulphur River and sites in other parts of the Great Bend area, in regard to the complex social developments and interregional exchange systems operative elsewhere in the Trans-Mississippi South?
- Do late prehistoric sites in the WOCMA survey area support a hierarchical model of Caddoan settlement systems, with a limited number of civic-ceremonial centers uniting a system of villages, hamlets, and farmsteads?
- Can interpretable patterns in changes in the frequency of local versus nonlocal lithic sources used in the production of stone tools be identified for all periods present at WOCMA?
- Can temporal developments and influences from external sources within the region be recognized in the lithic technological variability from WOCMA?

- Can the ceramic assemblages present at sites at WOCMA be used to construct a local ceramic chronology, and can they provide data on technological and stylistic variability which can in turn result in temporal and formal frameworks and regional synthetic research efforts?

Research questions from the WOCMA Research Design relevant to the historic period sites include:

- How did the changing focus of the agricultural economy during the latter part of the nineteenth century and the early part of the twentieth century affect the economic conditions and material life of white and black tenant farmers at WOCMA?
- Did the focus on production of a cash crop affect land-use practices in this part of Northeast Texas during the late nineteenth and the early twentieth centuries?
- How did the material culture of the three socioeconomic communities present in the area (large landholders, small landholders, tenants or sharecroppers) change in response to the national and regional economic conditions of the late nineteenth and early twentieth centuries?
- Is there a distinctive community patterning in the archeological record which is recognizable for each of the three socioeconomic groups present in the area during the late nineteenth and early twentieth centuries?
- Is the black community, as a sociocultural group, recognizable archeologically within the larger late nineteenth and early twentieth century rural community?

ARCHEOLOGICAL RESULTS OF THE 1993-1994 WOCMA SURVEY

As a result of the 1993-1994 WOCMA survey, 59 cultural resource sites were located and recorded within portions of Bowie, Morris, and Cass counties. Fifty-eight of these sites contained one or more prehistoric components, while five contained historical components. Estimates of site size range from a minimum of 250 m² to a maximum of 40,000 m², with nine prehistoric sites estimated to cover more than 15,000 m² (Table 2). Excluding sites from which only surface artifactual material was recovered (n=3), average subsurface artifact density per onsite shovel test ranged from a low of .1 to highs of 10.7 for the prehistoric components and 14.4 for the historical components. Eight prehistoric sites had average subsurface artifact densities greater than 5 artifacts per shovel test. In addition to the 59 cultural resource sites recorded by the 1993-1994 WOCMA survey, 34 nonsite localities were located, all of which were prehistoric (Table 3). The majority of the localities (n=32) consisted of isolated shovel tests containing one or more lithic artifacts, while one locality consisted of two tests with one lithic artifact in each one. Although some of these are probably representative of natural redeposition of material from nearby sites, many may be indicative of archeologically "invisible" levels of cultural activity. One additional locality consisted of surface material within a disturbed area. All of these localities are recommended to be ineligible for inclusion in the NRHP.

The sample of Native American sites recorded by the 1993-1994 WOCMA survey includes a minimum of 65 possible components, ranging in age from the Paleo-Indian to the Late Caddoan period (Table 4). Many of these components, although not a majority (n=25; 38.5 percent), are of unknown age, containing only nondiagnostic lithic remains. Similarly, 14 components (21.5 percent) can only be given a general Early Ceramic to Caddoan date, based on the presence of undecorated pottery. Although the pottery from all of these sites was thin and may well be of Caddoan origin, the possible presence of thin, well-made pottery of Coles Creek, or similar, origin in this area during the Early Ceramic period cannot be discounted, and these components cannot be automatically dated to the Caddoan period. The remaining components (n=26; 40 percent) have either diagnostic lithic or ceramic artifacts, or a combination thereof. A possible Paleo-Indian component was previously reported from one site, while diagnostic Late Paleo-Indian tools were present at

Table 2
Summary of Cultural Resource Sites Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey

Site Number	Period of Occupation	Drainage	Estimated Site Area (m ²)	Subsurface Artifact Frequency	Total Number of Shovel Tests	Number of Onsite Shovel Tests	Average Artifact Density per Onsite Shovel Test
41BW550	Prehistoric	Sulphur River	700	2	8	2	1.0
41BW551	Prehistoric	Sulphur River	3,900	30	18	9	3.3
41BW552	Prehistoric Historic	Sulphur River	700	8	7	2	4.0
			2,200	2	7	3	.7
41BW553	Prehistoric	Sulphur River	30,000	98	33	24	4.1
41BW554	Historic	Sulphur River	4,200	3	8	7	.4
41BW555	Prehistoric	Sulphur River	1,575	25	8	4	6.3
41MX48	Prehistoric	White Oak Creek	4,800	29	11	6	4.8
41MX49	Prehistoric Historic	White Oak Creek	2,400	27	12	8	3.4
			1,300	101	12	7	14.4
41MX50	Prehistoric	Sulphur River	520	0	8	2	0
41MX51	Prehistoric	Sulphur River	23,000	34	26	15	2.3
41MX52	Prehistoric	White Oak Creek	3,600	4	11	3	1.3
41MX53	Prehistoric	White Oak Creek	5,000	1	8	8	.1
41MX74	Prehistoric	White Oak Creek	15,300	56	15	11	5.1
41MX75	Prehistoric	Sulphur River	1,200	5	8	4	1.3
41MX76	Prehistoric	White Oak Creek	2,250	9	11	7	1.3
41MX77	Prehistoric	Sulphur River	2,500	15	9	6	2.5
41MX78	Prehistoric	White Oak Creek	600	3	10	3	1.0
41MX79	Prehistoric	Sulphur River	40,000	58	50	38	1.5
41MX80	Prehistoric	White Oak Creek	250	6	8	2	3.0

Table 2 (cont'd)

Site Number	Period of Occupation	Drainage	Estimated Site Area (m ²)	Subsurface Artifact Frequency	Total Number of Shovel Tests	Number of Onsite Shovel Tests	Average Artifact Density per Onsite Shovel Test
41MX81	Prehistoric	White Oak Creek	22,500	9	12	12	.8
41MX82	Prehistoric	White Oak Creek	1,079	5	9	6	.8
41MX83	Prehistoric	White Oak Creek	450	3	12	2	1.5
41MX84	Prehistoric	White Oak Creek	3,400	13	14	8	1.6
41MX85	Prehistoric	White Oak Creek	4,500	24	19	16	1.5
41MX86	Prehistoric	White Oak Creek	750	2	12	1	2.0
41MX87	Prehistoric	White Oak Creek	1,800	9	13	6	1.5
41MX88	Prehistoric	White Oak Creek	875	20	12	5	4.0
41MX89	Prehistoric	White Oak Creek	2,000	10	12	7	1.4
41MX90	Prehistoric	White Oak Creek	1,150	36	13	5	7.2
41MX91	Prehistoric	Sulphur River	2,400	8	12	4	2.0
41MX92	Prehistoric	Sulphur River	1,400	13	12	3	4.3
41MX93	Prehistoric	Sulphur River	1,625	7	12	5	1.4
41MX94	Prehistoric	White Oak Creek	250	0	12	2	0
41MX95	Prehistoric	White Oak Creek	600	5	12	3	1.7
41MX96	Prehistoric	White Oak Creek	260	7	12	2	3.5
41MX97	Prehistoric	White Oak Creek	1,200	33	12	6	5.5
41MX98	Prehistoric	White Oak Creek	3,000	36	16	7	5.1
41TT80	Prehistoric	White Oak Creek	35,000	6	5	2	3.0
41TT82	Prehistoric Historic	White Oak Creek	2,400 289	0 0	12 12	2 2	0 0
41TT661	Prehistoric Historic	Horse Creek	500 875	2 4	8 8	2 2	1.0 2.0

Table 2 (cont'd)

Site Number	Period of Occupation	Drainage	Estimated Site Area (m ²)	Subsurface Artifact Frequency	Total Number of Shovel Tests	Number of Onsite Shovel Tests	Average Artifact Density per Onsite Shovel Test
41TT662	Prehistoric	Horse Creek	4,500	12	13	8	1.5
41TT663	Prehistoric	Horse Creek	20,625	160	19	15	10.7
41TT664	Prehistoric	Horse Creek	6,400	36	24	11	3.3
41TT665	Prehistoric	Horse Creek	700	4	12	2	2.0
41TT666	Prehistoric	Horse Creek	500	3	11	3	1.0
41TT667	Prehistoric	Horse Creek	1,200	7	13	5	1.4
41TT668	Prehistoric	White Oak Creek	300	5	7	2	2.5
41TT669	Prehistoric	White Oak Creek	1,400	13	12	6	2.2
41TT670	Prehistoric	White Oak Creek	37,500	276	44	39	7.1
41TT671	Prehistoric	White Oak Creek	300	3	12	2	1.5
41TT672	Prehistoric	White Oak Creek	8,400	47	17	14	3.4
41TT673	Prehistoric	White Oak Creek	4,000	22	12	8	2.8
41TT674	Prehistoric	White Oak Creek	5,700	69	18	13	5.3
41TT675	Prehistoric	White Oak Creek	4,200	10	13	7	1.4
41TT676	Prehistoric	White Oak Creek	1,600	13	12	6	2.2
41TT677	Prehistoric	White Oak Creek	19,200	39	15	13	3.0
41TT678	Prehistoric	White Oak Creek	1,050	5	12	4	1.3
41TT679	Prehistoric	White Oak Creek	2,200	12	12	6	2.0
41TT680	Prehistoric	White Oak Creek	2,125	26	12	7	3.7

Table 3
Nonsite Localities Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey

Locality	Date	Description
1	Prehistoric	One survey shovel test with one piece of unmodified debitage.
2	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
3	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
4	Prehistoric	One survey shovel test with one piece of unmodified debitage.
5	Prehistoric	One survey shovel test with biface fragment and one piece of unmodified debitage.
6	Prehistoric	One survey shovel test with one piece of unmodified debitage.
7	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
8	Prehistoric	One survey shovel test with one piece of unmodified debitage.
9	Prehistoric	One survey shovel test with one piece of unmodified debitage.
10	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
11	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
12	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
13	Prehistoric	One survey shovel test with one piece of unmodified debitage.
14	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
15	Prehistoric	One survey shovel test with one piece of unmodified debitage.
16	Prehistoric	One piece of unmodified debitage from the surface.
17	Prehistoric	One survey shovel test with one piece of unmodified debitage.
18	Prehistoric	One survey shovel test with one piece of unmodified debitage.
19	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
20	Prehistoric	One survey shovel test with three pieces of unmodified debitage.
21	Prehistoric	One survey shovel test with one piece of unmodified debitage.
22	Prehistoric	One survey shovel test with one piece of unmodified debitage.
23	Prehistoric	One survey shovel test with one piece of unmodified debitage.
24	Prehistoric	One survey shovel test with one piece of unmodified debitage.
25	Prehistoric	One survey shovel test with one piece of unmodified debitage.
26	Prehistoric	One survey shovel test with one piece of unmodified debitage.
27	Prehistoric	Two survey shovel tests with two pieces of unmodified debitage.
28	Prehistoric	One survey shovel test with three eroded sherds.
29	Prehistoric	One survey shovel test with two pieces of unmodified debitage.
30	Prehistoric	One survey shovel test with one piece of unmodified debitage.
31	Prehistoric	One survey shovel test with one piece of unmodified debitage.
32	Prehistoric	One survey shovel test with one piece of unmodified debitage.
33	Prehistoric	One survey shovel test with uniface and two pieces of unmodified debitage.
34	Prehistoric	One survey shovel test with three pieces of unmodified debitage.

Table 4
Estimated Dates of Components and Site Types for Cultural Resource Properties
Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey

Site	Possible Date of Components	Site Classification
41BW550	Unknown prehistoric	Low intensity
41BW551	Early Ceramic - Caddoan	High intensity
41BW552	Unknown prehistoric 20th century	High intensity Low intensity (Hunting camp)
41BW553	Formative Caddoan Late Caddoan	High intensity
41BW554	20th century historic	High intensity (Residential)
41BW555	Late Archaic Early Ceramic - Caddoan	High intensity
41MX48	Early Ceramic - Caddoan	High intensity
41MX49	Unknown prehistoric 19th-20th century historic	High intensity High intensity (Residential)
41MX50	Late Archaic	Low intensity
41MX51	Middle - Late Caddoan	High intensity
41MX52	Late Archaic	Low intensity
41MX53	Unknown prehistoric	Low intensity
41MX74	Formative - Early Caddoan	High intensity
41MX75	Unknown prehistoric	Low intensity
41MX76	Unknown prehistoric	Low intensity
41MX77	Middle - Late Caddoan (?)	Low intensity
41MX78	Unknown prehistoric	Low intensity
41MX79	Formative - Early Caddoan	High intensity
41MX80	Unknown prehistoric	Low intensity
41MX81	Unknown prehistoric	Low intensity
41MX82	Late Archaic	Low intensity
41MX83	Unknown prehistoric	Low intensity
41MX84	Unknown prehistoric	Low intensity
41MX85	Unknown prehistoric	High intensity
41MX86	Unknown prehistoric	Low intensity
41MX87	Middle - Late Caddoan (?)	Low intensity
41MX88	Middle - Late Caddoan	High intensity
41MX89	Unknown prehistoric	Low intensity
41MX90	Early Ceramic - Caddoan	High intensity
41MX91	Early Ceramic - Caddoan	Low intensity
41MX92	Late Archaic Early Ceramic - Caddoan	High intensity
41MX93	Unknown prehistoric	Low intensity

Table 4 (cont'd)

Site	Possible Date of Components	Site Classification
41MX94	Late Paleo-Indian (?)	Low intensity
41MX95	Early Ceramic - Caddoan	Low intensity
41MX96	Late Caddoan	Low intensity
41MX97	Late Caddoan	High intensity
41MX98	Late Archaic	High intensity
41TT80	Paleo-Indian (?) Archaic Early Ceramic - Caddoan	High intensity
41TT82	Archaic Early Ceramic - Caddoan 20th century historic	Low intensity Low intensity (Hunting camp)
41TT661	Unknown prehistoric 20th century historic	Low intensity (Non-residential)
41TT662	Early Ceramic - Caddoan	Low intensity
41TT663	Early Caddoan	High intensity
41TT664	Unknown prehistoric	High intensity
41TT665	Early Caddoan	Low intensity
41TT666	Unknown prehistoric	Low intensity
41TT667	Unknown prehistoric	Low intensity
41TT668	Unknown prehistoric	Low intensity
41TT669	Early Ceramic - Caddoan	Low intensity
41TT670	Formative-Early Caddoan Middle-Late Caddoan	High intensity
41TT671	Unknown prehistoric	Low intensity
41TT672	Unknown prehistoric	High intensity
41TT673	Unknown prehistoric	High intensity
41TT674	Middle-Late Caddoan	High intensity
41TT675	Early Ceramic - Caddoan	Low intensity
41TT676	Early Ceramic - Caddoan	Low intensity
41TT677	Early Ceramic - Caddoan	High intensity
41TT678	Unknown prehistoric	Low intensity
41TT679	Unknown prehistoric	Low intensity
41TT680	Archaic	High intensity

another site. Bifacial tools broadly attributable to the Archaic period were identified at three sites, while six more sites contained dart point types generally considered diagnostic of the Late Archaic period. Six sites contained decorated ceramics which could be associated with the Formative to Early Caddoan periods (one specifically identified as Formative Caddoan and two more as Early Caddoan), while nine sites contained ceramic types identified as Middle to Late Caddoan in date (three specifically dated to the Late Caddoan period). When considered in chronological order (Table 5), this sample exhibits a general increase in site

Table 5
Summary of Prehistoric Site Components for Cultural Resource Properties Recorded
within the White Oak Creek Mitigation Area, 1993-1994 Survey

Temporal Period/Site Class	Bowie Co.		Morris Co.		Titus Co.	
	n	%	n	%	n	%
Unknown Prehistoric [n=25; 38.5%]						
Low intensity occupations	1	14.3	11	34.4	7	26.9
High intensity occupations	1	14.3	2	6.3	3	11.5
Paleo-Indian [n=2; 3.0%]						
Low intensity occupations	-		1	3.1	1	3.8
High intensity occupations	-		-		-	
Archaic [n=9; 13.8%]						
Low intensity occupations	-		3	9.4	1	3.8
High intensity occupations	1	14.3	2	6.3	2	7.7
Early Ceramic - Caddoan [n=14; 21.5%]						
Low intensity occupations	-		2	6.3	5	19.2
High intensity occupations	2	28.6	3	9.4	2	7.7
Formative - Early Caddoan [n=6; 9.2%]						
Low intensity occupations	-		-		1	3.8
High intensity occupations	1	14.3	2	6.3	2	7.7
Middle - Late Caddoan [n=9; 13.8%]						
Low intensity occupations	-		3	9.4	-	
High intensity occupations	1	14.3	3	9.4	2	7.7
Total [n=65]	7		32		26	

frequency from the Paleo-Indian (n=2), through the Archaic (n=9), to the combined Early Ceramic/Caddoan (n=29). This is taken to reflect a general increase in population in the White Oak Creek area throughout the prehistoric period. Unfortunately, the lack of finer temporal control for most of these sites precludes the identification of any perturbations within this broad trend, but it should be noted that a similar pattern is present within the overall Caddoan period, with an increase from Formative/Early Caddoan (n=6) to Middle/Late Caddoan (n=9).

The historic period components (n=5) within the 1993-1994 WOCMA survey area appear largely to date from the late nineteenth to the twentieth century. One of these (site 41BW554), the only single component historical site recorded by the 1993-1994 WOCMA survey, appears to be a twentieth century, domestic residential occupation. It is located adjacent to a present county road (known locally as Chicken Ranch Road) which forms part of the northeastern boundary of WOCMA in Bowie County. The other domestic residential site (41MX49) appears to date to the late nineteenth and early twentieth centuries, and was found adjacent to an existing Broseco Ranch road north of White Oak Creek. Two more historical components (41BW552 and 41MXTT82) are believed to be twentieth century recreational hunting cabins functioning only on a temporary basis. The final historical period site (41TT661) may be a twentieth century refuse deposit located adjacent to a Broseco Ranch road at its crossing of Horse Creek. On the basis of these findings, it appears that the bottomlands of the Sulphur River and White Oak Creek, and the immediately adjacent upland slopes and ridges, did not see historic occupation until recently, and then only of a fairly short duration.

PREHISTORIC SETTLEMENT PATTERNS

Due to the configuration of the survey areas during the 1993-1994 WOCMA survey, the majority of the prehistoric sites ($n=38$; 64 percent) recorded were found along White Oak Creek. Most of these sites are either on the edges of the uplands above White Oak Creek or on upland remnants created by the meandering of the creek. Fourteen sites (24 percent) were found along the Sulphur River, almost entirely on upland remnants in the floodplain created by the meanders of the Sulphur River. Horse Creek, a smaller drainage emptying into White Oak Creek, was represented in this sample by seven sites (12 percent), all clustered on the edge of the uplands.

The majority of the prehistoric sites found during the 1993-1994 WOCMA survey were associated with mapped areas of Woodtell very fine sandy loam ($n=27$). Other mapped soil types associated with five or more sites included Gladewater clay ($n=9$), Estes clay loam ($n=8$), Freestone fine sandy loam ($n=6$), Annona loam ($n=5$), and Bernaldo fine sandy loam ($n=5$). Fewer sites were associated with such soil types as the Woodtell-Raino complex ($n=4$), the Wolfpen loamy fine sand ($n=2$), the Estes-Woodtell complex ($n=2$), the Freestone-Woodtell complex ($n=2$), the Nahatche-Texark complex ($n=2$), the Derly-Raino complex ($n=1$), the Sawyer silt loam ($n=1$), and the Texark clay ($n=1$). The number of soil types exceeds the number of sites as many of these sites are associated with more than one soil type. Sites found in areas mapped as associated with floodplain deposits (e.g., Gladewater, Nahatche, and Texark soils) appear to have been on small, upland remnants with sandy or loamy soils, which the Soil Conservation Service was unable to map at the scale utilized.

The results of the 1993-1994 WOCMA survey further elucidate the pattern of vertical distribution of sites previously noted in the WOCMA area (Cliff, ed. 1994:198-200, Figure 99). Based on previous survey, it was noted, specifically, that prehistoric occupation within WOCMA focused on several areas, including:

1. flat upland edges or benches in close proximity to what was at the time the channel of White Oak Creek (and possibly the Sulphur River);
2. rises composed of eroded upland material, or overbank levee features adjacent to what was at the time the channel of White Oak Creek (and possibly the Sulphur River); and
3. ridges adjacent to and rises within the broad valleys of relatively large tributary creeks of both White Oak Creek and the Sulphur River.

Within these areas, there appears to have been a preference for sandy loam or loam soils over clay or clay loam soils. In broad outline, these findings tend to mirror those of the WOCMA Moist Soils Management Area (MSMA) survey (Cliff and Peter, eds. 1992:120-121):

... it appears that the majority of prehistoric sites within the WOCMA MSMA are associated with sandy or sandy loam soils. Usually these soils are located on toeslope rises, benches on slopes, and upland edges overlooking the floodplain [sic] of the Sulphur River, its former channels (e.g., Jennings Lake), and its major tributaries (e.g., Tuck Creek, Caney Creek, and Mill Creek); but they also are present in selected locations, such as former sandy levees or rises, buried within the Sulphur River floodplain [sic].

Examination of the distribution of prehistoric sites by major chronological period (i.e., Archaic, Early Ceramic, and Caddoan) generally yields patterns that are not inconsistent with those perceived by previous surveys at WOCMA (Cliff, ed. 1994; Cliff and Peter, eds. 1992). Nine sites with components dated to the Archaic were identified as a result of the 1993-1994 WOCMA survey. Of these, four sites are classified as low intensity occupations and five as high intensity occupations. This ratio of 1.3 high intensity occupations to each low intensity occupation (1.3:1) favors high intensity occupation Archaic sites. The 1990-1992

WOCMA survey produced a ratio of three high intensity occupation sites (functionally designated *residential sites*) to each low intensity occupation site (designated *logistical sites*), a ratio of 3:1 also favoring high intensity occupation Archaic sites (Cliff, ed. 1994). This pattern favoring high intensity Archaic occupation sites was viewed as the result of a settlement system that "stressed reoccupation of favored locations over a long period of time" (Cliff, ed. 1994:200). Although the ratio of high to low intensity Archaic period sites located during the 1993-1994 WOCMA survey differs from the ratio observed during the previous survey, it still supports the conclusions of the previous survey. Despite some differences, both surveys are believed to reflect a settlement system that reoccupied favored locations within a productive riverine region over a long period of time.

Unfortunately, no unequivocal sites of the Early Ceramic period were identified during the 1993-1994 WOCMA survey, so this data base adds nothing to our understanding of Early Ceramic settlement patterns. However, 14 sites with only plain ceramics, which could be either Early Ceramic or Caddoan in date, were located. This sample includes seven high intensity occupations and seven low intensity occupations, for a ratio of high to low intensity occupations of 1:1, an unusually low ratio when compared to other time periods and suggesting a nonrandom mixing of sites of the two time periods (for example, while a majority of the high intensity occupations may be Early Ceramic, many of the low intensity occupations may be small Caddoan period sites).

Fifteen components recorded by the 1993-1994 WOCMA survey have been identified as belonging to the Caddoan period alone. These have been grouped into components of the Formative/Early Caddoan periods (n=6) and components of Middle/Late Caddoan period (n=9). High intensity occupation sites (n=11) outnumber low intensity occupation sites (n=4) for the Caddoan period as a whole, as well as for the Formative/Early period (5 to 1, respectively) and for the Middle/Late period (6 to 3, respectively). Thus, the ratio of high to low intensity sites for the Caddoan period as a whole is 2.8:1, but it is 5:1 for the Formative/Early Caddoan period alone and 2:1 for the Middle/Late period alone. The 1990-1992 WOCMA survey produced eight high intensity (i.e., residential) occupations and three low intensity (i.e., logistical) occupations, a ratio of 2.7:1 favoring high intensity occupation sites during the Caddoan period as a whole (Cliff, ed. 1994). This pattern was viewed as "reflecting a real dichotomy between permanently or semipermanently occupied residential sites and ephemeral logistical sites" (Cliff, ed. 1994:205). The results of the present survey seem to add additional support to this hypothesis, although they raise the possibility that high intensity occupations may have been twice as abundant, relatively speaking, during the Formative/Early Caddoan period as they were during the Middle/Late Caddoan. In addition, high intensity occupation sites were, on the average, larger during the Formative/Early Caddoan period (28,625 m²; n=5) than during the Middle/Late Caddoan period (16,379 m²; n=6). This would seem to suggest a real dichotomy in settlement pattern between the two periods, but such a conclusion may be premature given the small sample of identified Caddoan period components (n=11) and considering the likelihood that many low intensity occupations of the Caddoan period may have yielded only plain ceramics and be datable only to the Early Ceramic - Caddoan period. When present and past survey results for the Caddoan period as a whole are combined (n=29), the ratio favoring high intensity occupation (or residential) sites is also 2.7 high intensity occupation sites for each low intensity (or logistical) site, or 2.7:1. This pattern is believed to reflect the greater time being spent on agricultural pursuits and further restriction of movement over the landscape, thus primary locations begin to be occupied more continuously and fewer logistical sites are revisited less often or not at all.

RECOMMENDATIONS

Of the 59 cultural resource properties visited and evaluated by the 1993-1994 WOCMA survey, it is recommended that 12 presently be considered ineligible for inclusion in the NRHP (Table 6). These 12 sites (41BW554, 41MX49, 41MX50, 41MX52, 41MX53, 41MX82, 41MX83, 41MX86, 41TT661, 41TT666, 41TT675, and 41TT678) are believed to have little or no potential of containing significant data important

Table 6
National Register of Historic Places Assessment of Cultural Resource Properties
Recorded within the White Oak Creek Mitigation Area, 1993-1994 Survey

Site	Density of Material ¹	Contextual Integrity ²	NRHP Assessment	Recommendation
41BW550	Low	Fair	Unknown	Test with 41BW551 and 41BW552
41BW551	Moderate	Fair	Unknown	Test with 41BW550 and 41BW552
41BW552	Moderate	Fair	Unknown	Test with 41BW550 and 41BW551
41BW553	Moderate	Excellent	Unknown	Preserve and test
41BW554	Low	Poor	Ineligible	No further work
41BW555	High	Good	Unknown	Preserve and test
41MX48	Moderate	Fair	Unknown	Preserve and test
41MX49	Moderate to High	Fair to Good	Ineligible	No further work
41MX50	None	Poor	Ineligible	No further work
41MX51	Low	Excellent	Unknown	Preserve and test
41MX52	Low	Fair	Ineligible	No further work
41MX53	Low	Fair	Ineligible	No further work
41MX74	High	Good	Unknown	Preserve and test
41MX75	Low	Fair	Unknown	Preserve and test
41MX76	Low	Good	Unknown	Preserve and test
41MX77	Low	Excellent	Unknown	Preserve and test
41MX78	Low	Good	Unknown	Preserve and test
41MX79	Low	Good	Unknown	Preserve and test
41MX80	Moderate	Good	Unknown	Preserve and test
41MX81	Low	Good	Unknown	Preserve and test
41MX82	Low	Poor	Ineligible	No further work
41MX83	Low	Fair	Ineligible	No further work
41MX84	Low	Good	Unknown	Preserve and test
41MX85	Low	Good	Unknown	Preserve and test
41MX86	Low	Fair	Ineligible	No further work
41MX87	Low	Fair	Unknown	Preserve and test

Table 6 (cont'd)

Site	Density of Material ¹	Contextual Integrity ²	NRHP Assessment	Recommendation
41MX88	Moderate	Good	Unknown	Preserve and test
41MX89	Low	Good	Unknown	Preserve and test
41MX90	High	Good	Unknown	Preserve and test
41MX91	Low	Fair	Unknown	Preserve and test
41MX92	Moderate	Good	Unknown	Preserve and test
41MX93	Low	Good	Unknown	Preserve and test
41MX94	Low or None	Unknown	Unknown	Preserve and test
41MX95	Low	Good	Unknown	Preserve and test
41MX96	Moderate	Excellent	Unknown	Preserve and test
41MX97	High	Excellent	Unknown	Preserve and test
41MX98	High	Good	Unknown	Preserve and test
41TT80	Moderate	Fair	Unknown	Preserve and test
41TT82	Low or none	Fair	Unknown	Preserve and test
41TT661	Low	Fair	Ineligible	No further work
41TT662	Low	Good	Unknown	Preserve and test
41TT663	High	Good	Unknown	Preserve and test
41TT664	Moderate	Good	Unknown	Preserve and test
41TT665	Low	Good	Unknown	Preserve and test
41TT666	Low	Fair	Ineligible	No further work
41TT667	Low	Excellent	Unknown	Preserve and test
41TT668	Low	Good	Unknown	Preserve and test
41TT669	Low	Good	Unknown	Preserve and test
41TT670	High	Excellent	Unknown	Preserve and test
41TT671	Low	Good	Unknown	Preserve and test
41TT672	Moderate	Good	Unknown	Preserve and test
41TT673	Low	Good	Unknown	Preserve and test
41TT674	High	Excellent	Unknown	Preserve and test

Table 6 (cont'd)

Site	Density of Material ¹	Contextual Integrity ²	NRHP Assessment	Recommendation
41TT675	Low	Fair	Ineligible	No further work
41TT676	Low	Good	Unknown	Preserve and test
41TT677	Moderate	Good	Unknown	Preserve and test
41TT678	Low	Fair	Ineligible	No further work
41TT679	Low	Good	Unknown	Preserve and test
41TT680	Moderate	Fair	Unknown	Preserve and test

1 Criteria for density categories:

High = Average subsurface artifact density within the site area equals more than 5 artifacts per shovel test.

Moderate = Average subsurface artifact density ranges from 3 to less than 5 artifacts per shovel test.

Low = Average subsurface artifact density is less than 3 artifacts per shovel test.

2 Criteria for levels of contextual integrity:

Excellent = Site judged to be largely intact; or site may have identifiable well-preserved archeological features or deposits, faunal preservation, buried stratified deposits, and/or intact spatial artifact patterning; minimal disturbance generally limited to bioturbation, peripheral erosion, or very limited human disturbance.

Good = Site judged to be largely intact; only identifiable disturbances due to bioturbation, erosion, and localized or limited cultural activity; possible intact artifact patterning; no evidence for features, faunal remains, or buried deposits.

Fair = Site judged to be only partially intact; several types of limited cultural disturbances may be present, including light-duty roads, fences, possible machine disturbance, erosion and deflation, and bioturbation.

Poor = Site judged to be only minimally intact; evidence of heavy disturbance or destruction of the site, due to bulldozing, earthmoving, erosion, or other processes.

to our understanding of the prehistoric or historical periods in Northeast Texas. In these cases, this is due to the fact that the site area appears to have been either moderately or severely impacted by recent historic or natural activities with the result that the site has suffered destruction or severe mixing of the soil deposits in which any archeological remains might be found.

The remaining 47 recorded sites (41BW550, 41BW551, 41BW552, 41BW553, 41BW555, 41MX48, 41MX51, 41MX74, 41MX75, 41MX76, 41MX77, 41MX78, 41MX79, 41MX80, 41MX81, 41MX84, 41MX85, 41MX87, 41MX88, 41MX89, 41MX90, 41MX91, 41MX92, 41MX93, 41MX94, 41MX95, 41MX96, 41MX97, 41MX98, 41TT80, 41TT82, 41TT662, 41TT663, 41TT664, 41TT665, 41TT667, 41TT668, 41TT669, 41TT670, 41TT671, 41TT672, 41TT673, 41TT674, 41TT676, 41TT677, 41TT679, and 41TT680) are recommended to be considered of "unknown eligibility" for inclusion in the NRHP. For most of these sites, this is based on the need for further evaluation of the archeological remains and deposits. These sites appear to provide a well-preserved sample of prehistoric components in fair or good context. All of these sites may contain significant archeological deposits dating to the prehistoric period which could be used to address some of the historic contexts for Northeast Texas. Some sites may in fact relate to more than one historic context. Based on the results of the survey, it appears that sites 41BW555, 41MX92, 41MX94, 41MX98, 41TT80, 41TT82, and 41TT680 may relate to the context, *Hunter-Gatherer Mobility in Northeast Texas, 10,000 B.C. to 200 B.C.*; sites 41BW551, 41BW553, 41BW555, 41MX48, 41MX74, 41MX79, 41MX90, 41MX91, 41MX92, 41MX95, 41TT80, 41TT82, 41TT662, 41TT663, 41TT665, 41TT669, 41TT670, 41TT676, and 41TT677 to *The Emergence of Sedentism in the Northeast Texas Archeological Region, ca. 500 B.C. to A.D. 1000*; and sites 41BW551, 41BW553, 41BW555, 41MX48, 41MX51, 41MX74, 41MX77, 41MX79, 41MX87, 41MX88, 41MX90, 41MX91, 41MX92, 41MX95, 41MX96, 41MX97, 41TT80, 41TT82, 41TT662, 41TT663, 41TT665, 41TT669, 41TT670, 41TT674,

41TT676, and 41TT677 to *The Development of Agriculture in Northeast Texas before A.D. 1600*. Unfortunately, without additional chronological data, it is not clear which historic contexts sites 41BW550, 41BW552, 41MX75, 41MX76, 41MX78, 41MX80, 41MX81, 41MX84, 41MX85, 41MX89, 41MX93, 41TT664, 41TT667, 41TT668, 41TT671, 41TT672, 41TT673, and 41TT679 may relate to.

Based on the data collected by the 1993-1994 WOCMA survey, and the assessment of the research potential for each site, recommendations have been made for each cultural property. The preferred treatment for all potentially significant properties within the boundary of WOCMA is preservation and protection, but it is recognized that this may not always be possible. For some sites preservation presents no problems; however, other sites may be in the path of construction activities associated with the planned development of WOCMA, such as roads, boat ramps, and ranger stations. Other activities resulting from the planned WOCMA development may have long-term impacts on the cultural resource sites present within the area. These would include:

1. natural processes, such as erosion and seasonal inundation, which might result in the destruction or serious compromising of archeological deposits over a long period of time; and
2. increased site destruction as a result of illicit artifact collecting and/or digging, promoted by increased ease of accessibility and increased public activity that would normally accompany the development of WOCMA.

In regard to the 47 sites located by this survey whose eligibility for inclusion in the NRHP has not been determined, it is recognized that they differ in terms of susceptibility to these various types of impacts. At the present time, the perimeter boundary fence has already been constructed around the present survey area, and whatever impacts may accompany that construction in this area have already occurred. Beyond this, it is believed that some sites may be in danger of being impacted by construction of public access roads and boat ramps, while others may be impacted by maintenance roads. Finally, other sites may be subjected to increased erosion as a result of new forms of public utilization, such as off-road vehicular traffic.

In light of the high potential for these, and other, types of impacts to the cultural resource properties within WOCMA, it is recommended that the NRHP-evaluation process be completed for those 29 sites that are currently acknowledged to be of unknown eligibility. The evaluation of these sites should involve test excavations as a means of evaluating the actual potential of each site to contribute to our understanding of prehistoric lifeways in Northeast Texas and to provide information for a Cultural Resources Management Plan (CRMP) for WOCMA, to be developed with the concurrence of the Texas State Historic Preservation Officer (SHPO). Those sites that can be recognized as being eligible for inclusion in the NRHP should be protected from any further impacts, and the steps taken to protect them should be developed in the CRMP for WOCMA.

Completion of the intensive pedestrian survey of the WOCMA perimeter has made clear that relict landforms of sufficient age to contain archeological material are exposed within portions of both the Sulphur River and White Oak Creek floodplains. These include low eroded upland surfaces that form rises, ridges, or knolls within the present alluvial floodplain of the river, as well as probable overbank and levee deposits that may contain buried archeological remains. These landforms, and the sites located in or on them, are associated with both the present and former channels of the Sulphur River and White Oak Creek, many of which can be discerned on current USGS maps of the area.

On this basis, the following recommendations for the future cultural resource investigations at WOCMA are made:

1. a program of transect sampling should be instituted in those broad floodplain areas which do not have visible mapped rises;

2. a sample river and creek bank survey should be undertaken along the channel of both the Sulphur River and White Oak Creek which, if it proves to be productive, should be expanded into a complete channel survey; and finally,
3. additional geoarcheological investigations should be undertaken in an attempt to identify and date relict floodplain features along both the upstream area of the Sulphur River and the entire length of White Oak Creek, for the purpose of both identifying archeological deposits and reconstructing the Holocene history of this portion of the Sulphur River basin.

Finally, it should be made explicit that these must be long-term recommendations, since their successful accomplishment is dependent upon accessibility to areas that are subject to flooding and inundation along both the Sulphur River and White Oak Creek. Nevertheless, adopting the above recommendations as changes in the WOCMA Research Design can only improve the quality and the reliability of the cultural resources data available from WOCMA and aid future management decisions.

REFERENCES CITED

- Albert, L.E.
1981 *Ferndale Bog and Natural Lake: Five Thousand Years of Environmental Change in Southeastern Oklahoma*. Studies in Oklahoma's Past No. 7. Oklahoma Archeological Survey, Norman.
- Bailey, G.L., D.K. Boyd, and C.B. Bousman
1991 *Archeological Survey of the City Lakes Area and Geomorphological and Magnetometer Surveys, Cooper Lake Project, Delta and Hopkins Counties, Texas*. Technical Report No. 11. Prewitt and Associates, Inc., Austin.
- Banks, L.D.
1983 Prehistoric Engineering Along a Meandering River: An Hypothesis. In *River Meandering: Proceedings of the Conference on Rivers, 1983*, edited by C.M. Elliott, pp. 191-203. American Society of Civil Engineers, New York.
- Banks, L.D., and J. Winter
1975 *The Bentsen-Clark Site, Red River County, Texas: A Preliminary Report*. Special Publication No. 2, The Texas Archeological Society.
- Barnard, H.D.
1939 *Early History of Research in Texas Archeology by the Department of Anthropology, and the History of the Anthropology Museum of the University of Texas*. Unpublished Master's thesis, University of Texas, Austin.
- Bell, M.
n.d. Titus County site forms. On file at the Texas Archeological Research Laboratory, Austin.
- Binford, L.R.
1980 Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4-20.
- Bousman, C.B., M.B. Collins, and T.K. Perttula
1988 *Quaternary Geomorphology at Cooper Basin: A Framework for Archeological Inquiry, Delta and Hopkins Counties, Texas*. Report of Investigations Number 55. Prewitt and Associates, Inc., Austin.

- Campbell, R.B.
1989 *An Empire for Slavery - The Peculiar Institution in Texas, 1821-1865*. Louisiana State University Press, Baton Rouge.
- Carley, D.
n.d. *Evidence of Early Man in Northeast Texas*. Preliminary report submitted to the Texas Historical Commission, Austin.
- Chandler, B.O.
1937 *A History of Bowie County*. Masters thesis, University of Texas, Austin.
- Chandler, B.O., and J.E. Howe
1939 *History of Texarkana . . . and . . . Bowie and Miller Counties, Texas-Arkansas*. Texarkana, Texas-Arkansas.
- Cliff, M.B.
1995 Archaeological Investigations at 41DT80: The Thomas Site. In *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*, J.M. Adovasio, R.W. Moir, D.E. McGregor, and D.H. Turney, Principal Investigators, pp. 165-274. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Cliff, M.B. (editor)
1994 *Cultural Resources Survey of a Portion of the White Oak Creek Mitigation Area (WOCMA), Bowie, Cass, and Morris Counties, Texas: 1990-1992*. White Oak Creek Mitigation Area Archeological Technical Series, Report of Investigations Number 2. Geo-Marine, Inc., Plano, Texas.
- Cliff, M.B., M.M. Green, S.M. Hunt, and D. Shanabrook
1995 *Archeological Test Excavations at Two Prehistoric Sites (41DT59 and 41DT247) at Cooper Lake, Delta County, Texas, 1994*. Miscellaneous Report of Investigations No. 90. Geo-Marine, Inc., Plano, Texas.
- Cliff, M.B., M.M. Green, S.M. Hunt, D. Shanabrook, and D.E. Peter
1995 *Excavations at 41CS151, Area C, White Oak Creek Mitigation Area (WOCMA), Cass County, Texas*. White Oak Creek Mitigation Area Archeological Technical Series, Report of Investigations Number 4. Geo-Marine, Inc., Plano, Texas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Cliff, M.B., and S.M. Hunt
1995 *Cultural Resources Testing of Three Sites within the Moist Soils Management Area (MSMA) of the White Oak Creek Mitigation Area (WOCMA), Cass County, Texas*. White Oak Creek Mitigation Area Archeological Technical Series, Report of Investigations Number 3. Geo-Marine, Inc., Plano, Texas.
- Cliff, M.B., and D.E. Peter (editors)
1988 *Test Excavations at Sites 41BW182 and 41BW183, Red River Army Depot, Bowie County, Texas*. RRAD/LSAAP Archeological Technical Series, Report of Investigations, No. 1. Geo-Marine, Inc., Plano, Texas.

- Brewington, R.L., J.E. Dockall, and H.J. Shafer
1995 *Archaeology of 41MX5: A Late Prehistoric Caddoan Hamlet in Morris County, Texas*. Reports of Investigations No. 1. Center for Environmental Archaeology, Texas A & M University, College Station.
- Brickey, C.
n.d. Site forms for 41BW120 and 41BW121. On file at the Texarkana Historical Museum, Texarkana.
- Briggs, A.K., and J. Malone
1970 *An Archaeological Survey of the Texarkana Reservoir Enlargement Area*. Archaeological Survey Report No. 7. Texas Historical Survey Committee and Texas Water Development Board, Austin.
- Brown, D., and K. Gust
1976 *Between the Creeks: Recollections of Northeast Texas*. The Encino Press, Austin.
- Brune, G.
1981 *Springs of Texas, Volume 1*. Branch-Smith, Inc., Fort Worth.
- Bruseth, J.E.
1992 Mysteries of the Ray Site: Results of the 1992 Field School. Paper presented at the 63rd Annual Meeting of the Texas Archeological Society, Corpus Christi.
- Bruseth, J.E., and N.A. Kenmotsu
1991 Soldiers of Misfortune: The de Soto Expedition Through Texas. *Heritage* 9(4):12-17.
- Bruseth, J.E., N.A. Kenmotsu, B. Martin, D. Prikryl, T. Perttula, J. Jaquier, and L. Banks
1991 Summary of the 1991 Field School in Red River County. *Texas Archeology* 35(3):1, 6-10.
- Bruseth, J.E., and T.K. Perttula
1981 *Prehistoric Settlement Patterns at Lake Fork Reservoir*. Texas Antiquities Permit Series Report No. 2. Archaeology Research Program, Southern Methodist University, Dallas.
- Bryant, V.M., Jr., and R.G. Holloway
1985 A Late-Quaternary Paleoenvironmental Record of Texas: An Overview of the Pollen Evidence. In *Pollen Records of Late-Quaternary North American Sediments*, edited by V. Bryant and R.G. Holloway, pp. 39-70. American Association of Stratigraphic Palynologists Foundation, Dallas.
- Bureau of Economic Geology (V.E. Barnes, Project Director) [BEG]
1964 *Geologic Atlas of Texas, Tyler Sheet*. University of Texas at Austin, Bureau of Economic Geology.

1966 *Geologic Atlas of Texas, Texarkana Sheet*. (Second printing, 1979). University of Texas at Austin, Bureau of Economic Geology.
- Campbell, L.J., C.S. Weed, M.T. Swanson, and J.E. Keller
1983 *Background and Literature Review for Three Proposed Alternatives — Northwest Louisiana Water Supply Study — Bossier, Caddo, DeSoto, and Webster Parishes, Louisiana; Harrison and Marion Counties, Texas; Lafayette County, Arkansas*. Report of Investigations No. 93. New World Research, Inc., Pollock, Louisiana.

- 1992 *Cultural Resources Survey of the Moist Soils Management Area, White Oak Creek Mitigation Area (WOCMA), Cass County, Texas.* White Oak Creek Mitigation Area Archeological Technical Series, Report of Investigations, No. 1. Geo-Marine, Inc., Plano, Texas.
- 1994 *Cultural Resources Survey of 2,226 Hectares Within the Red River Army Depot and Lone Star Army Ammunition Plant, Bowie County, Texas.* RRAD/LSAAP Archeological Technical Series, Report of Investigations, No. 4. Geo-Marine, Inc., Plano, Texas.
- Creel, D.
1984 Hatchel-Mitchell Site. Draft submitted to the *Handbook of Texas*. Ms. on file, Texas Archeological Research Laboratory, University of Texas, Austin.
- Creel, D., and R. Fields
1979 Field Notes on the Tilson site. On file with the Texas Historical Commission, Austin.
- Davis, E.M.
1970 Archaeological and Historical Assessment of the Red River Basin in Texas. In *Archeological and Historical Resources of the Red River Basin*, edited by H. Davis, pp. 25-65. Research Series No. 1. Arkansas Archeological Survey, Fayetteville.
- Delcourt, H.R., and P.A. Delcourt
1985 Quaternary Palynology and Vegetational History of the Southeastern United States. In *Pollen Records of Late-Quaternary North American Sediments*, edited by V. Bryant, Jr., and R.G. Holloway, pp. 1-37. American Association of Stratigraphic Palynologists Foundation, Dallas.
- Dickinson, S.D.
1941 Certain Vessels from the Clements Place, an Historic Caddo Site. *Bulletin of the Texas Archeological and Paleontological Society* 13:117-132.
- Dixon, B., S. Kotter, E. Skokan, K. Reese-Taylor, E. Barnhart, M. Nash, P. Dering, M. Newman, K. Reese-Taylor, and E. Weinstein
1995 *Data Recovery Excavations at Sites 41TT372 and 41TT550 in the Tankersley and Hayes Creek Watersheds, Monticello B-2 Surface Mine, Titus County, Texas.* Document No. 940608. Espey, Huston & Associates, Inc., Austin. Prepared for TU Services, Dallas.
- Doehner, K., and R.E. Larson
1978 *Archaeological Research at Proposed Cooper Lake, Northeast Texas, 1974-1975.* Research Report No. 108. Archaeology Research Program, Southern Methodist University, Dallas.
- Doehner, K., D. Peter, and S.A. Skinner
1978 *Evaluation of the Archaeology at the Proposed Cooper Lake.* Research Report No. 114. Archaeology Research Program, Southern Methodist University, Dallas.
- Duffield, L.F.
1959 *Archeological Reconnaissance at Cooper Reservoir, Delta and Hopkins Counties, Texas, February, 1959.* The Texas Archeological Salvage Project, University of Texas at Austin. Submitted to the National Park Service, U.S. Department of the Interior.
- East Texas State University
1971 *An Environmental Inventory and Survey of the Sulphur River Basin.* Commerce.

- Ensor, H.B.
 1987 San Patrice and Dalton Affinities on the Central and Western Gulf Coastal Plain. *Bulletin of the Texas Archeological Society* 57:69-81.
- Espey, Huston and Associates, Inc. (EHA)
 1980 *An Archaeological/Historic Survey of Sections of the Proposed Welsh-N.W. Texarkana 345 KV Transmission Line, Cass and Bowie Counties, Texas, Department of the Army Permit No. SWF-80-CASS-329.* Submitted to Southwestern Electric Power Company, Shreveport.
- Everett, D.
 1990 *The Texas Cherokees—A People Between Two Fires, 1819-1840.* University of Oklahoma Press, Norman.
- Fehrenbach, T.R.
 1968 *Lone Star, A History of Texas and the Texans.* American Legacy Press, New York.
- Ferraro, P., and R. Ferraro
 1966 *A Bottle Collector's Book.* Western Printing and Publishing, Sparks, Nevada.
- Ferring, C.R.
 1989 The Aubrey Clovis Site: A Paleoindian Locality in the Upper Trinity River Basin, Texas. *Current Research in the Pleistocene* 6:9-11.
 1990 *Late Quaternary Geology and Geoarchaeology of the Upper Trinity River Drainage Basin, Texas.* Field Trip No. 11 Guidebook. 1990 Annual Meeting of the Geological Society of America. Dallas Geological Society, Dallas.
 1995 Middle Holocene Environments, Geology, and Archaeology in the Southern Plains. In *Archaeological Geology of the Archaic Period in North America*, edited by E.A. Bettis, pp. 21-35. Special Paper 297. Geological Society of America, Boulder, Colorado.
- Fields, R.C., D.K. Boyd, C.B. Bousman, and J.B. McLerran
 1991 *Review of Cultural Resource Investigations at Cooper Lake, Delta and Hopkins Counties, Texas.* Prewitt and Associates, Inc., Austin. Submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Fields, R.C., E.F. Gadus, L.W. Klement, C.B. Bousman, and J.B. McLerran
 1993 *Excavations at the Tick, Spike, Johns Creek, and Peerless Bottoms Sites, Cooper Lake Project, Delta and Hopkins Counties, Texas.* Report of Investigations, Number 91. Prewitt and Associates, Inc., Austin.
- Fields, R.C., E.F. Gadus, L.W. Klement, and K.M. Gardner
 1994 *Excavations at the Spider Knoll Site, Cooper Lake Project, Delta County, Texas.* Report of Investigations Number 96. Prewitt and Associates, Inc., Austin.
- Fields, R.C., and S.A. Tomka
 1993 Historic Context: Hunter-Gatherer Mobility in Northeast Texas, 10,000 - 200 B.C. In *Archeology in the Eastern Planning Region, Texas: A Planning Document*, edited by N.A. Kenmotsu and T.K. Perttula, pp. 69-95. Cultural Resource Management Report 3. Department of Antiquities Protection, Texas Historical Commission, Austin.

- Fike, R.E.
1966 *Guide to Old Bottles, Contents and Prices*. Two Vols. Privately published, Ogden, Utah.
- Fisher, W.L.
1965 *Rock and Mineral Resources of East Texas*. Report of Investigations No. 54. Texas Bureau of Economic Geology, Austin.
- Flores, D.L. (editor)
1984 *Jefferson and Southwestern Exploration - The Freeman and Custis Accounts of the Red River Expedition of 1806*. University of Oklahoma Press, Norman.
- Ford, R.I.
1985 Patterns of Prehistoric Food Production in North America. In *Prehistoric Food Production in North America*, edited by Richard I. Ford, pp. 341-364. Anthropological Papers No. 75. Museum of Anthropology, University of Michigan, Ann Arbor.
- Fox, R.W.
1980 *Soil Survey of Bowie County, Texas*. United States Department of Agriculture, Soil Conservation Service in cooperation with Texas Agricultural Experiment Station, College Station.
- Gadus, E.F., R.C. Fields, and C.B. Bousman
1992 *Archeological Investigations at 41DT11, 41DT21, 41DT50, 41DT54, and 41DT63 at Cooper Lake, Delta County, Texas*. Report of Investigations, Number 86. Prewitt and Associates, Inc., Austin.
- Gadus, E.F., R.C. Fields, C.B. Bousman, S.A. Tomka, and M.A. Howard
1992 *Excavations at the Finley Fan Site (41HP159), Cooper Lake Project, Hopkins County, Texas*. Report of Investigations, Number 78. Prewitt and Associates, Inc., Austin.
- Gadus, E.F., R.C. Fields, L.W. Klement, C.B. Bousman, M.A. Howard, and K.M. Gardner
1991 *Testing, Revisitation, and Evaluation of Selected Sites at Cooper Lake, Delta and Hopkins Counties, Texas*. Report of Investigations, Number 81. Prewitt and Associates, Inc., Austin.
- Gaither, S., T.K. Perttula, and G. Cheatwood
1991 The Cheatwood Place (41RR181), A Midden Mound along Little Mustang Creek, Red River County, Texas. *Caddoan Archeology* 2(1):21-28.
- Gilmore, K.
1986 *French-Indian Interaction at an Early Eighteenth Century Post: The Roseborough Lake Site, Bowie County, Texas*. Contributions in Archaeology No. 3. Institute of Applied Sciences, North Texas State University, Denton.
- Gilmore, K., and N. Hoffrichter
1964 Preliminary Investigations of the L.O. Ray Site, Delta County, Texas. *The Record* 19(1):3-17.
- Gilmore, K., and O. McCormick
1980 *Red River Archaeological Project, Phase I*. Institute of Applied Sciences, North Texas State University, Denton.
- 1982 *Red River Archaeological Project, Phase I and II*. Contributions in Archaeology No. 2. Institute of Applied Sciences, North Texas State University, Denton.

Goldschmidt, W.R.

- 1935 A Report on the Archaeology of Titus County in East Texas. *Bulletin of the Texas Archeological and Paleontological Society* 7:89-99.

Goodyear, A.C.

- 1982 The Chronological Placement of the Dalton Horizon in the Southeastern United States. *American Antiquity* 47:382-395.

Gramly, R.M.

- 1992 *Guide to the Palaeo-Indian Artifacts of North America*. Second, revised edition. Persimmon Press Monographs in Archaeology. Persimmon Press, Buffalo, New York.

Guy, J.A.

- 1990 Previous Archeological Investigations. In *The Archeology and Bioarcheology of the Gulf Coastal Plain*, vol. 1, by D.A. Story, J.A. Guy, B.B. Burnett, M.D. Freeman, J.C. Rose, D.G. Steele, B.W. Olive, and K.J. Reinhard, pp. 27-130. Research Series No. 8. Arkansas Archeological Survey, Fayetteville.

Hackney, V.H.

- 1966 *Port Caddo - A Vanished Village and Vignettes of Harrison County*. Marshall National Bank, Marshall, Texas.

Hamilton, D.L.

- 1972 An Analysis of the Engraved Sherds and Vessels from the A.R. Hatchel Place, Bowie County, Texas. Ms. on file, Texas Archeological Research Laboratory, University of Texas, Austin.

Harris, R.K.

- 1953 The Sam Kaufman Site, Red River County, Texas. *Bulletin of the Texas Archeological Society* 24:43-68.

Heartfield, L., and T. Dieste

- 1984a *An Archeological Overview and Management Plan for the Lone Star Army Ammunition Plant*. DARCOM Report No. 17. Submitted to the National Park Service, U.S. Department of the Interior, Atlanta, by Woodward-Clyde Consultants, Walnut Creek, California.
- 1984b *An Archeological Overview and Management Plan for the Red River Army Depot, Bowie County, Texas*. DARCOM Report No. 18. Submitted to the National Park Service, U.S. Department of the Interior, Atlanta, by Woodward-Clyde Consultants, Walnut Creek, California.

Hemmings, E.T.

- 1983 Vertebrate Fossils from Recent Red River Point Bar and Channel Bar Deposits in the Great Bend Region. In *Contributions to the Archeology of the Great Bend Region, Southwest Arkansas*, edited by F.F. Schambach and F. Rackerby, pp. 30-38. Research Series No. 22. Arkansas Archeological Survey, Fayetteville.

Hilliard, J.E.

- 1980 *Prehistoric Ozark Settlement-Subsistence and Nut Resource Utilizations*. Unpublished Master's thesis, University of Arkansas, Fayetteville.

Hoffman, M.P.

- 1970 *Three Sites in the Millwood Reservoir: The Hutt Site, the Stark Site, and the Beard Site.* Research Series No. 2. Arkansas Archeological Survey, Fayetteville.

Hoyt, S.D., R. Rogers, E. Skokan, and W.P. Glander

- 1994 *Cultural Resources Survey of the Proposed Monticello I Area Surface Mine, Titus County, Texas.* Document No. 910438. Espey, Huston & Associates, Inc., Austin. Prepared for TU Services, Dallas.

Hughes, G., and T. Hughes

- 1968 *The Collectors Encyclopedia of English Ceramics.* Abbey Library, London.

Hyatt, R.D., B.H. Butler, and H.P. Mosca

- 1974 *Archaeological Research at Cooper Lake, 1970-1972.* Contributions in Anthropology No. 12. Southern Methodist University, Dallas.

Hyatt, R.D., and K. Doehner

- 1975 *Archaeological Research at Cooper Lake, Northeast Texas, 1973.* Contributions in Anthropology No. 15. Southern Methodist University, Dallas.

Hyatt, R.D., and S.A. Skinner

- 1971 *Archaeological Resources of the Cooper Reservoir, Texas.* Department of Anthropology, Southern Methodist University. Submitted to the National Park Service, U.S. Department of the Interior.

Jackson, A.T.

- 1931 Department of Anthropology Field Notebook No. 3 for 1931: April 17, 1931 (Tom N. Cole or Mustang Creek Site). On file at the Texas Archeological Research Laboratory, University of Texas, Austin.
- 1932 Exploration of a Burial Site on E.H. Moores Plantation in Bowie County, Texas. Ms. on file, Texas Archeological Research Laboratory, Austin.

Jelks, E.B.

- 1961 *Excavations at Texarkana Reservoir, Sulphur River, Northeastern Texas.* River Basin Survey Papers No. 21, B.A.E. Bulletin No. 179. Bureau of American Ethnology, Washington, D.C.

Jensen, H.P., Jr.

- 1968 Coral Snake Mound X16SA48. *Bulletin of the Texas Archeological Society* 39:9-44.

Johnson, L., Jr.

- 1962 The Yarbrough and Miller Sites of Northeastern Texas, with a Preliminary Definition of the LaHarpe Aspect. *Bulletin of the Texas Archeological Society* 32:141-284.
- 1989 *Great Plains Interlopers in the Eastern Woodlands During Late Paleo-Indian Times: The Evidence from Oklahoma, Texas, and Areas Close By.* Office of the State Archeologist Report No. 36. Texas Historical Commission, Austin.

Jones, D.

- 1990 Preservation Planning: National Register Programs Department. *APR News & Views: Department of Archeological Planning & Review, Texas Historical Commission* 2(1):4.

- Jones, L.K., D. Moore, D. Brown, C. Frederick, W. Glander, R. Rogers, and M. Parker
 1989 *Cultural Resources Survey of the Proposed Monticello B-2 Surface Mine, Titus County, Texas*. Document No. 880206. Espey, Huston & Associates, Inc., Austin. Prepared for Texas Utilities Mining Company, Fairfield, Texas.
- Jordan, T.G.
 1986 A Century and a Half of Ethnic Change in Texas, 1836-1986. *Southwestern Historical Quarterly* 89:385-422.
- Jurney, D.H.
 1995 Summary of Historic Archaeology: Results of the 1987 Field Season. In *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*, J.M. Adovasio, R.W. Moir, D.E. McGregor, and D.H. Jurney, Principal Investigators, pp. 527-537. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Jurney, D.H., and J. Bohlin
 1993 *Archaeological Survey of Cooper Lake, Delivery Order Number 6, 1989: Cultural Resources Studies for Cooper Lake, Hopkins and Delta Counties, Texas*. Archaeology Research Program, Institute for the Study of Earth and Man, Southern Methodist University, Dallas.
- Jurney, D.H., J. Bohlin, M. Masucci, B.A.C. Cole, and S. Linder-Linsey
 1993 *Archaeological Survey of Cooper Lake, Delivery Order Number 7, 1989: Cultural Resources Studies for Cooper Lake, Hopkins and Delta Counties, Texas*. Archaeology Research Program, Institute for the Study of Earth and Man, Southern Methodist University, Dallas.
- Jurney, D.H., D.E. McGregor, W.A. Martin, M. Green, R.W. Moir, M.B. Cliff, and J.W. Saunders
 1995 *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Kelley, D.B., S.S. Victor, and M.D. Freeman
 1988 *Archaeology in the Flatwoods: An Intensive Survey of Portions of the Louisiana Army Ammunition Plant, Bossier and Webster Parishes, Louisiana*. Coastal Environments, Inc., Baton Rouge.
- Kenmotsu, N.A., and T.K. Perttula (editors)
 1993 *Archeology in the Eastern Planning Region, Texas: A Planning Document*. Cultural Resource Management Report 3. Department of Antiquities Protection, Texas Historical Commission, Austin.
- Kingston, M. (editor)
 1988 *Texas Almanac, 1988-1989*. A.H. Belo Corp., Dallas.
- Kotter, S.M., L. Jones, C. Frederick, and W. Glander
 1991 *An Archaeological Investigation of 41TT182 in the Monticello-Winfield South Surface Mine, Titus County, Texas*. Document No. 910264. Espey, Huston & Associates, Inc., Austin. Prepared for Texas Utilities Mining Company, Fairfield, Texas.

- Kotter, S.M., R. Rogers, R. Taylor, K. Reese-Taylor, and W.P. Glander
 1993 *Archaeological Investigation Within the Monticello B-2 First Five-Year Disturbance Area, Titus County, Texas*. Document No. 920013. Espey, Huston and Associates, Inc., Austin. Prepared for Texas Utilities Mining Company, Fairfield, Texas.
- Krieger, A.D.
 1946 *Culture Complexes and Chronology in Northern Texas*. Publication No. 4640. University of Texas, Austin.
- Lebo, S.A.
 1988 *The Tucker(41DT104) and Sinclair (41DT105) Cemeteries of Delta County, Texas: An Archaeological and Bioarchaeological Perspective*. Institute of Applied Sciences, University of North Texas, Denton.
- Lewis, G.A.
 1987 *The Clements Brothers' Farm Site 41CS25*. Unpublished M.A. thesis, University of Texas.
- Lofstrom, E.U.
 1976 A Seriation of Historic Ceramics in the Midwest, 1780-1870. Paper presented at the Joint Plains-Midwest Anthropological Conference, October.
- McClurkan, B.B., W.T. Field, and J.N. Woodall
 1966 *Excavations in Toledo Bend Reservoir, 1964-65*. Paper No. 8. Texas Archeological Salvage Project, Austin.
- McClurkan, B.B., E.B. Jelks, and H.P. Jensen
 1980 Jonas Short and Coral Snake Mounds: A Comparison. In *Caddoan and Poverty Point Archaeology: Essays in Honor of Clarence Hungerford Webb*, edited by Jon L. Gibson. *Louisiana Archaeology* 6:173-206, for 1979.
- McGregor, D.E.
 1995 Archaeological Investigations at 41HP137. In *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*, J.M. Adovasio, R.W. Moir, D.E. McGregor, and D.H. Journey, Principal Investigators, pp. 347-367. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- McGregor, D.E., and E. Roemer
 1989 *Archeological Survey at Cooper Lake, Proposed Water Intake Easement for North Texas Municipal Water District, Hopkins County, Texas*. Letter report prepared by the U.S. Army Corps of Engineers, Fort Worth District.
- McKearin, G.S., and H. McKearin
 1968 *American Glass*. Crown Publishers, New York.
- McMahan, C.A., R.G. Frye, and K.L. Brown
 1984 *The Vegetation Types of Texas, Including Cropland*. (Illustrated Synopsis and Map). Wildlife Division, Texas Parks and Wildlife Department, Austin.
- Mallouf, R.J.
 1976 *Archeological Investigations at Proposed Big Pine Lake, 1974-1975, Lamar and Red River Counties, Texas*. Archeological Survey Report No. 18. Texas Historical Commission, Austin.

Martin, W.A.

- 1992 Archeology at the Roitsch Site: Wet and Wild. Paper presented at the 63rd Annual Meeting of the Texas Archeological Society, Corpus Christi.

1995a Archaeological Investigations at 41DT124: The Doctors Creek Site. In *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*, J.M. Adovasio, R.W. Moir, D.E. McGregor, and D.H. Journey, Principal Investigators, pp. 275-345. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.

1995b Archaeological Investigations at 41HP78: The Lawson Site. In *Archaeological Survey of Cooper Lake, Delivery Order Number 4, 1989*, J.M. Adovasio, R.W. Moir, D.E. McGregor, and D.H. Journey, Principal Investigators, pp. 369-435. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.

Martin, W.A., J. Bruseth, G. Fritz, P. Murry, and R. Fullington

- 1987 Subsistence Patterns. In *The Bird Point Island and Adams Ranch Sites: Methodological and Theoretical Contributions to North Central Texas Archaeology*, edited by J. Bruseth and W. Martin, pp. 127-142. Richland Creek Technical Series Volume II. Archaeology Research Program, Southern Methodist University, Dallas.

Meltzer, D.J., and B.D. Smith

- 1986 Paleoindian and Early Archaic Subsistence Strategies in Eastern North America. In *Foraging, Collecting and Harvesting: Archaic Period Subsistence and Settlement in the Eastern Woodlands*, edited by S.W. Neusius, pp. 3-31. Occasional Paper No. 6. Center for Archaeological Investigations, Southern Illinois University, Carbondale.

Miller, G.L.

- 1974 A Tenant Farmer's Tableware: Nineteenth Century Ceramics From Tabb's Purchase. *Maryland Historical Magazine* 69 (2):197-210.

Miller, J.E.

- 1986 The Myers Mound: Salvage Excavations at a Caddo II Site in Southwest Arkansas. *The Arkansas Archeologist* 23/24 (for 1982/1983):67-127.

Miroir, M.P.

- n.d. Site Notes. On file at the Texarkana Historical Museum, Texarkana.

Miroir, M.P., R.K. Harris, J.C. Blaine, and J. McVay

- 1975 Benard de la Harpe and the Nassonite Post. *Bulletin of the Texas Archeological Society* 44:113-168.

Moneyhon, C.H.

- 1989 Public Education and Texas Reconstruction Politics, 1871-1874. *Southwestern Historical Quarterly* 92(3):393-416.

Moore, C.B.

- 1912 *Some Aboriginal Sites on Red River*. Volume XIV, second series, Journal of the Academy of Natural Science of Philadelphia.

- Moorman, E.H., and E.B. Jelks
 1952 *Appraisal of the Archeological Resources of the Cooper Reservoir, Delta and Hopkins Counties, Texas*. River Basin Surveys, Smithsonian Institution, Texas Area, Austin.
- Murray, G.E.
 1960 *Geologic Framework of the Gulf Coastal Province of the United States*. Association of Petroleum Geologists, Tulsa, Oklahoma.
- Nash, M.A., S.M. Kotter, K.V. Reese-Taylor, E.A. Skokan, E.R. Foster, R.M. Rogers, and W.P. Glander
 1995 *National Register Testing of Ten Sites in the Monticello B-2 Surface Mine, Titus County, Texas*. Document No. 930529. Espey, Huston & Associates, Inc., Austin. Prepared for TU Services, Dallas.
- Neuman, R.W.
 1970 Archaeological and Historical Assessment of the Red River Basin in Louisiana. In *Archeological and Historical Resources of the Red River Basin*, edited by Hester Davis, pp. 1-24. Research Series No. 1. Arkansas Archeological Survey, Fayetteville.
 1984 *An Introduction to Louisiana Archaeology*. Louisiana State University, Baton Rouge.
- Newell, H.P., and A.D. Krieger
 1949 *The George C. Davis Site, Cherokee County, Texas*. Memoir No. 5. The Society for American Archaeology, Washington, D.C.
- Newman, J.R.
 1988 *A Cultural Resources Survey of the Proposed Central Distribution Center (CDC) Construction Site, Borrow Area, and Sanitary Landfill Area at the Red River Army Depot, Bowie County, Texas*. U.S. Army Corps of Engineers, Fort Worth District.
- Pearce, J.E.
 1932 The Archaeology of East Texas. *American Anthropologist* 34:670-687.
- Perino, G.
 1983 *The Bob Williams Site (41RR16), Red River County, Texas*. Museum of the Red River, Idabel, Oklahoma.
 1994 Archaeological Research at the Rowland Clark Site (41RR77), Red River County, Texas. *Journal of Northeast Texas Archaeology* 4:3-42.
- Perttula, T.K.
 1988a Cultural Setting. In *Test Excavations at Sites 41BW182 and 41BW183, Red River Army Depot, Bowie County, Texas*, edited by Maynard B. Cliff and Duane E. Peter, pp. 11-25. RRAD/LSAAP Archeological Technical Series, Report of Investigations, No. 1. Geo-Marine, Inc., Plano, Texas.
 1988b *Cultural Resources Survey at Cooper Lake, Delta and Hopkins Counties, Texas*. Institute of Applied Sciences, North Texas State University, Denton.
 1989 *Test Excavations at Three Late Nineteenth/Early Twentieth Century Farmsteads at Cooper Lake, Delta and Hopkins Counties, Texas* (with contributions by H. Brown and B.C. Yates). Contributions in Archaeology No. 8. Institute of Applied Sciences, University of North Texas, Denton.

- 1990 *The Hurricane Hill Site (41HP106): Excavations at an Early Ceramic-Caddoan Settlement at Cooper Lake, Hopkins County, Texas*. Contributions in Archaeology No. 9. Institute of Applied Sciences, University of North Texas, Denton. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- 1992 *"The Caddo Nation": Archaeological and Ethnohistoric Perspectives*. University of Texas Press, Austin.
- Perttula, T.K. (editor)
- 1989 *The James Frank Site (41DT97): Excavations at a Mid-Nineteenth Century Farmstead in the South Sulphur River Valley, Cooper Lake Project, Texas* (with contributions by R.I. Birnie, H. Brown, and B.C. Yates). Contributions in Archaeology No. 7. Institute of Applied Sciences, University of North Texas, Denton.
- Perttula, T.K., R.C. Fields, J.E. Corbin, and N.A. Kenmotsu
- 1993 The Emergence of Sedentism in Northeast Texas, ca. 500 B.C. to A.D. 1000. In *Archeology in the Eastern Planning Region, Texas: A Planning Document*, edited by N.A. Kenmotsu and T.K. Perttula, pp. 97-120. Cultural Resource Management Report 3. Department of Antiquities Protection, Texas Historical Commission, Austin.
- Perttula, T.K., S. Gaither, and R. Nathan
- 1989 *A Cultural Resources Survey of the Willow-Tex Pipeline, Howland to Paris, Lamar County, Texas*. Institute of Applied Sciences, University of North Texas, Denton. Report submitted to Tenoska, Inc. and the U.S. Army Corps of Engineers, Tulsa District.
- Perttula, T.K., and R. Nathan
- 1989 *Cultural Resources Survey of the Natural Gas Pipeline Company of America Southern Interconnect Pipeline, Lamar, Red River, Franklin, Titus, Morris, and Cass Counties, Texas*. Institute of Applied Sciences, University of North Texas, Denton.
- Perttula, T.K., B.D. Skiles, M.B. Collins, M.C. Trachte, and F. Valdez, Jr.
- 1986 *"This Everlasting Sand Bed": Cultural Resources Investigations at the Texas Big Sandy Project, Wood and Upshur Counties, Texas*. Reports of Investigations No. 52. Prewitt and Associates, Inc., Austin.
- Peter, D.E., and M.B. Cliff (editors)
- 1990a *Intensive Archeological Survey and Archival Investigations at the Red River Army Depot and Lone Star Army Ammunition Plant, Bowie County, Texas*. RRAD/LSAAP Archeological Technical Series, Report of Investigations, No. 2. Geo-Marine, Inc., Plano, Texas.
- 1990b *Cultural Resources Survey of Historic Sites at the Lone Star Army Ammunition Plant, Bowie County, Texas*. RRAD/LSAAP Archeological Technical Series, Report of Investigations, No. 3. Geo-Marine, Inc., Plano, Texas.
- Peter, D.E., M.B. Cliff, and J.T. Abbott
- 1990 *Research Design for Cultural Resources Investigations at the White Oak Creek Mitigation Area, Bowie, Cass, Morris, and Titus Counties, Texas*. Geo-Marine, Inc., Plano, Texas. Submitted to the U.S. Army Corps of Engineers, Fort Worth District.

Peter, D.E., and D.H. Journey

- 1988 Environmental Background. In *Late Holocene Prehistory of the Mountain Creek Drainage*, edited by D.E. Peter and D.E. McGregor, pp. 5-26. Joe Pool Lake Archaeological Project Volume I. Archaeology Research Program, Southern Methodist University, Dallas.

Peter, D.E., T.K. Perttula, M.B. Cliff, S.M. Hunt, C. Stiles-Hanson, and N.G. Reese

- 1991 *Red River Army Depot and Lone Star Army Ammunition Plant Cultural Resource Management Plan*. Geo-Marine, Inc., Plano, Texas. Prepared for the Red River Army Ammunition Plant/Lone Star Army Ammunition Plant and the U.S. Army Corps of Engineers, Fort Worth District.

Plog, F., and S. Upham

- 1983 The Analysis of Prehistoric Political Organization. In *The Development of Political Organization in Native North America: 1979 Proceedings of the American Ethnological Society*, edited by E. Tooker, pp. 199-213. The American Ethnological Society, Washington, D.C.

Pool, W.C.

- 1975 *A Historical Atlas of Texas*. The Encino Press, Austin.

Preston, N.E.

- 1972 Multiple Paleo Finds in Hunt County, Texas. *Missouri Archaeological Society Newsletter*, October 1972:6-8.
- 1974 Waco Sinkers in Association with Paleo-Indian Artifacts. *The Record* 30(4):4-5.

Price, C.R.

- 1979 *19th Century Ceramics in the Eastern Ozark Border Region*. Southwest Center for Archaeological Research, Missouri State University. Monograph Series No. 1.

Prikryl, D.J.

- 1992 A Preliminary Report on the 1992 TAS Field School Excavations at the Fasken Mounds Site. Paper presented at the 63rd Annual Meeting of the Texas Archeological Society, Corpus Christi.

Purdue, J.A.

- 1983 The Environmental Implications of the Fauna Recovered from Rodgers Shelter. In *Holocene Adaptations within the Lower Pomme de Terre Valley, Missouri*, edited by M. Kay, pp. 199-261. The Illinois State Museum, Springfield. Submitted to the U.S. Army Corps of Engineers, Kansas City District.

Roberts, K.

- 1990 *Soil Survey of Camp, Franklin, Morris, and Titus Counties, Texas*. United States Department of Agriculture - Soil Conservation Service, in cooperation with Texas Agricultural Experiment Station and Texas State Soil and Water Conservation Board.

Schambach, F.F.

- 1979 Summary of Local and Regional Archeology. In *Hampton: An Archeological and Historical Overview of a Proposed Strip Mine Tract in South Central Arkansas*, assembled by T.C. Klinger, pp. 21-30. Research Report No. 19. Arkansas Archeological Survey, Fayetteville.

- 1982a The Archaeology of the Great Bend Region in Arkansas. In *Contributions to the Archeology of the Great Bend Region of the Red River Valley, Southwest Arkansas*, edited by F.F. Schambach and F. Rackerby, pp. 1-11. Research Series No. 22. Arkansas Archeological Survey, Fayetteville.
- 1982b An Outline of Fourche Maline Culture in Southwest Arkansas. In *Arkansas Archeology in Review*, edited by N.L. Trubowitz and M.D. Jeter, pp. 132-197. Research Series No. 15. Arkansas Archeological Survey, Fayetteville.
- Schmidly, D.J.
 1983 *Texas Mammals East of the Balcones Fault Zone*. Texas A&M University Press, College Station.
- Scurlock, J.D.
 1962 The Culpepper Site, A Late Fulton Aspect Site in Northeast Texas. *Bulletin of the Texas Archeological Society* 32:285-316.
- Shafer, H.J.
 1977 Early Lithic Assemblages in Eastern Texas. *The Museum Journal* 17:187-197. West Texas Museum Association, Lubbock.
- Shepard, D.K., M.M. Green, and D.E. Peter
 1994 *Friendship: An African-American Community on the Prairie Margin of Northeast Texas* [Draft]. Miscellaneous Report of Investigations Number 81, Geo-Marine, Inc., Plano. Draft report submitted to the U.S. Army Corps of Engineers, Fort Worth District.
- Skinner, S.A., R.K. Harris, and K.M. Anderson
 1969 *Archaeological Investigations at the Sam Kaufman Site, Red River County, Texas*. Contributions in Anthropology, No. 5. Southern Methodist University, Dallas.
- Slaughter, E.H., and B.R. Hoover
 1963 Sulphur River Formation and the Pleistocene Mammals of the Ben Franklin Local Fauna. *Journal of the Graduate Research Center* 31(3):132-148. Southern Methodist University, Dallas.
- Smith, F.T.
 1991 The Kadohadacho Indians and the Louisiana-Texas Frontier, 1803-1815. *Southwestern Historical Quarterly* 95(2):177-204.
 1995 *The Caddo Indians: Tribes at the Emergence of Empires, 1542-1854*. Texas A&M University Press, College Station.
- Smith, M.T.
 1989 Indian Responses to European Contact: The Coosa Example. In *First Encounters: Spanish Explorations in the Caribbean and the United States, 1492-1570*, edited by J. T. Milanich and S. Milbrath, pp. 135-149. Number 9, Ripley P. Bullen Monographs in Anthropology and History. Florida Museum of Natural History, University of Florida Press, Gainesville.
- South, S.S.
 1972 Evolution and Horizon as Revealed in Ceramic Analysis in Historical Archaeology. *The Conference on Historic Sites Archaeology Papers* 1971 (6):71-116.

- 1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.
- Stephenson, R.L.
 1950 *Archaeological Survey of Texarkana Reservoir, Bowie and Cass Counties, Texas*. River Basin Surveys, Smithsonian Institution, Washington, D.C.
- Story, D.A.
 1981 An Overview of the Archaeology of East Texas. *Plains Anthropologist* 26-92:135-158.
 1985 Adaptive Strategies of Archaic Cultures of the West Gulf Coastal Plain. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 19-56. Anthropological Papers No. 75. Museum of Anthropology, University of Michigan, Ann Arbor.
 1990 Cultural History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plain: Volume 1*, by D.A. Story, J.A. Guy, B.A. Burnett, M.D. Freeman, J.C. Rose, D.G. Steele, B.W. Olive, and K.J. Reinhard, pp. 163-366. Research Series No. 38. Arkansas Archeological Survey, Fayetteville.
- Swanton, J.R.
 1946 *The Indians of the Southeastern United States*. BAE Bulletin 137. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Taylor, H.C.
 1949 An Archaeological Survey of the Mounds on the Red River from DeKalb, Texas to Ida, Louisiana. Ms. on file, Texas Archeological Research Laboratory, University of Texas, Austin.
- Texas Historical Commission (THC)
 1991 1991 TAS Field School: Big Turnout & Great Archeology! *APR News & Views* 3(2):11-13.
- Thurmond, J.P.
 1985 Late Caddoan Social Group Identifications and Sociopolitical Organization in the Upper Cypress Basin and Vicinity, Northeastern Texas. *Bulletin of the Texas Archeological Society* 54:185-200.
 1990 *Archeology of the Cypress Creek Drainage Basin, Northeastern Texas and Northwestern Louisiana*. Studies in Archeology No. 5. Texas Archeological Research Laboratory, University of Texas, Austin.
- Tucker, G.C.
 1994 Archeological Investigations at Site 41BW422. *Texas Historical Commission Cultural Resource Management News & Views* 6(1):6.
- Usner, D.H., Jr.
 1992 *Indians, Settlers, & Slaves in A Frontier Exchange Economy: The Lower Mississippi Valley Before 1783*. University of North Carolina Press, Chapel Hill.
- Walbridge, W.S.
 1969 *American Bottles Old and New*. Reprint. Frontier Press, Fort Davis, Texas.

Watson, P.J.

- 1988 Prehistoric Gardening and Agriculture in the Midwest and Midsouth. In *Interpretations of Culture Change in the Eastern Woodlands during the Late Woodland Period*, edited by R.W. Yerkes, pp. 39-67. Occasional Papers in Anthropology No. 3. Ohio State University, Columbus.

Webb, C.H., J.L. Shiner, and E.W. Roberts

- 1971 The John Pearce Site (16CD56): A San Patrice Site in Caddo Parish, Louisiana. *Bulletin of the Texas Archeological Society* 42:1-49.

Webb, W.P., and H.B. Carroll (editors)

- 1952 *The Handbook of Texas*. 2 vols. Texas State Historical Association, Austin.

Weddle, R.S.

- 1985 *Spanish Sea: The Gulf of Mexico in North American Discovery, 1500-1685*. Texas A&M University Press, College Station.

Wedel, M.M.

- 1978 *La Harpe's 1719 Post on Red River and Nearby Caddo Settlements*. Bulletin 30. The Texas Memorial Museum, University of Texas, Austin.

Williams, S.

- 1974 The Aboriginal Location of the Kadohadacho and Related Indian Tribes. In *Caddoan Indians I*, pp. 281-330. Garland Publishing, Inc., New York.

Winchell, F., J.C. Rose, and R.W. Moir

- 1992 *Bioanthropological Investigation of Nineteenth Century Burials at Site 41DT105: Cultural Resource Studies for Cooper Lake, Delta County, Texas*. Archaeology Research Program, Department of Anthropology, Southern Methodist University, Dallas.

Wyckoff, D.G.

- 1974 The Caddoan Cultural Area: An Archaeological Perspective. In *Caddoan Indians I*, pp. 25-279. Garland Publishing, Inc., New York.

APPENDIX A

DEFINITIONS OF PREHISTORIC ARTIFACT CLASSES

by

Sharlene N. Allday, Floyd B. Largent, Jr., and Maynard B. Cliff

INTRODUCTION

The major classes of chipped stone artifacts recognized by this analysis consist of: (1) finished bifacial tools; (2) unfinished bifaces; (3) unifaces or unifacial tools; (4) unmodified lithic debitage; (5) utilized flakes or debitage; and (6) cores. Additional classes of non-chipped stone artifacts include (7) ground/pecked/battered stone tools and (8) unworked stone. The ninth major artifact class recognized in this analysis consisted of ceramics/baked clay. Each of these artifacts classes is described separately below.

GROUP 1: LITHICS

Class 1: Finished Bifacial Tools

Finished bifacial tools are those finely worked pieces in which the manufacturing process has been apparently brought to completion, as evidenced by secondary retouch, edge straightening, hafting preparation, notching, and similar characteristics. A minimum of 11 tool types are recognized: (1) dart point; (2) arrow point; (3) indeterminate point; (4) axe; (5) thinned biface (knife); (6) chopper; (7) drill; (8) adze/gouge; (9) marginal bifacial retouch; (10) graver; and (11) indeterminate biface.

These tools are further classified on the basis of their completeness: (1) complete; (2) tip; (3) mid-section; (4) base/stem; (5) longitudinal fracture; (6) tang; (7) blade; (8) proximal/medial (all but tip); (9) distal/medial (all but base); and (10) indeterminate fragment.

Dart Points, Arrow Points, and Indeterminate Points

Dart points, arrow points, and indeterminate points include all varieties of projectile points — defined as bifacial tools formed by fine secondary retouch with basal modification in the form of notching, stemming, or thinning of the proximal end for purposes of hafting. Dart points are presumed to have been employed to tip hand-held spears or atlatl darts; arrow points are presumed to have been used to tip arrows; and indeterminate points are, as the name implies, of uncertain usage. Distinctions between dart and arrow points are somewhat subjective in actual practice, although many dart points are made on bifacial cores or large flakes using full bifacial reduction; while many arrow points are made on smaller, thinner flakes with bifacial reduction limited to edge modification. All projectile points are assigned to recognized and defined types whenever possible.

Axe

Axes are bifacially worked, generally rectangular to subrectangular or trapezoidal tools which exhibit modification along all edges. The modification has produced relatively straight to convex ends. Indications of hafting may be present in the form of lateral edge grinding or surface polishing or facetting on either one or both surfaces. The broad distal end may show signs of use in the form of fine step fracture flake scars.

Thinned Biface (Knife)

Thinned bifaces are sufficiently whole, bifacially worked blanks which exhibit biconvex symmetry, the presence of at least one edge formed by fine secondary retouch, and an absence of cortex except for the proximal end. These artifacts are commonly referred to as knives in the literature.

Chopper

Choppers are cobbles which have been modified, usually bifacially, into a teardrop shape by the removal of several flakes from one end. The opposite cortical, rounded end is unmodified, providing a handgrip during utilization.

Drill

Drills are bifacial tools characterized by a long, tapered, bifacially flaked bit on the distal end, which is diamond shaped in cross-section. During the Archaic period, the distal ends of projectile points were often reworked to produce this form, which resulted in a fully formed tool with a stemmed or notched proximal end. Drills from later periods tend to be smaller and were often fashioned from flakes, with the proximal end consisting simply of a retouched circular or oval handle.

Adze/Gouge

These bifacial chisel-like tools are assumed to be for woodworking. They are generally triangular, subtriangular, or sharply trapezoidal in shape and are worked along the wide distal end to produce a steep, beveled working edge which may be straight to convex. In cross-section, these tools usually appear to be plano-convex to pyramidal. The proximal end was narrower and may have been socketed in a haft, or bound to an acutely angled handle. The tool itself was probably hafted perpendicular to the handle. Indications of hafting may be present in the form of lateral edge grinding or surface polishing or facetting on either one or both surfaces. The distal end may show signs of use in the form of fine step fracture flake scars on the dorsal face of the working edge.

Marginal Bifacial Retouch

These specimens, usually modified flakes, exhibit limited but deliberate modification on both faces along a portion of one or more edges. They are very similar to marginally modified/retouched unifaces except that the retouch is bifacial instead of unifacial. Their function is unknown.

Bifacial Graver

Bifacial gravers are similar to unifacial borers or gravers in that they are small, drill-like tools that are characterized by the presence of two adjacent concavities formed along an edge through the removal of small flakes, resulting in a sharp, prominent protrusion or spur that was presumably used for perforating. In the case of bifacial gravers, this graver spur was formed by bifacial retouch along both edges of the spur.

Indeterminate Biface

An indeterminate biface is a finished bifacial tool whose morphological form does not fit with any of the previously defined tool types and whose original function remains uncertain.

Class 2: Unfinished Bifaces

Unfinished bifaces are those in which the manufacturing process has not been brought to completion. These artifacts usually tend to be somewhat crude, lacking the fine workmanship of finished tools. Five types of unfinished bifaces are recognized: (1) aborted, Early; (2) aborted, Late; (3) arrow point preform; (4) dart point preform; and (5) indeterminate fragment.

These types are further subdivided on the basis of whether they are complete or fragmentary.

Aborted, Early

Aborted bifaces in general are bifacially worked artifacts that appear to have been rejected prior to the completion of the bifacial reduction process. The early aborted biface specimens usually lack symmetry and exhibit sinuous edges formed by the removal of large, thick flakes. Cortex is usually present on at least one surface and areas of step or hinge fracturing may be evident.

Aborted, Late

Late aborted biface specimens usually exhibit biconvex symmetry and straight or well-formed edges. Generally, all cortex will have been removed, but the fine, pressure retouch characteristic of a thinned biface is not present.

Arrow Point and Dart Point Preforms

These specimens are bifacially worked blanks with indications of fine edge retouch from pressure flaking along both lateral edges. The proximal ends of the blanks lack the necessary modification that would facilitate hafting. Some specimens retain portions of the original striking platform. Most arrow point preforms can be identified on the basis of the blank used — small, thin flakes which receive only moderate (or even minimal) bifacial modification to form the final tool. Otherwise, dart and arrow point preforms can also be distinguished based on overall dimensions.

Indeterminate Fragment

These specimens are bifacially worked pieces that cannot be placed in a more specific class because of their fragmentary nature.

Class 3: Unifaces

Unifaces or unifacial tools are formal lithic tools made by modification of only one face, as opposed to bifacial tools that are modified on both faces. As a result, unifacial tools exhibit flake scars on one side only. This retouch is usually on the dorsal side, but it is not unusual to have unifacial ventral retouched tools. Fourteen basic types of unifacial tool have been defined: (1) marginally modified/retouched uniface; (2) borer; (3) burin; (4) denticulate; (5) end scraper; (6) side scraper; (7) scraper with graver spur; (8) unifacial graver; (9) notch; (10) burin spall; (11) unifacial adze/gouge; (12) backed flake/blade; (13) transverse side scraper; and (14) circular scraper.

These types are further subdivided on the basis of whether the specimen is complete or fragmentary.

Marginally Modified/Retouched Unifaces

These are presumed to be deliberately retouched pieces, usually flakes, that are characterized by a single row of relatively small flake scars (often less than 2 mm in width) forming a working edge with an angle of less than 50°. One or more edges may have been modified in this fashion. In the Old World, similar tools are known as *raclettes*. Their function is unknown.

Borer

Borers are small, drill-like unifacial tools that are similar to gravers but are distinguished by alternating edge retouch. These pieces are characterized by two adjacent concavities formed along an edge through the removal of small flakes, resulting in a sharp, prominent spur that was used for perforating. On borers, one side of the spur is formed by unifacial retouch from the dorsal face, while the other side of the spur is formed by unifacial retouch from the ventral face.

Burin

A burin is a tool with a wedge-shaped, chisel-like edge which has been produced by the removal of a long, narrow sliver or spall, often perpendicular to the axis of the specimen. The specialized flake removed as a result of the burin technique is called a burin blade or spall (see blow).

Denticulate

This type of unifacial tool is formed by the removal of small flakes along one lateral edge of a flake or other lithic piece in order to form a working edge that is multiply notched or serrated.

End scraper

These are unifacial tools with the retouch restricted to either the distal or proximal end of the blank, which is usually a blade or an elongated flake, generally producing a steep, convex working edge. Marginal retouch may appear along the lateral edges of the blank but this is easily distinguishable from the working edge. The opposing end of the piece may bear some minimal retouch, that was performed in order to facilitate hafting.

Side scraper

These are unifacial tools with steep scraper retouch present on one or both lateral edges of the blank, which is usually a flake or blade. The working edge may be straight to convex or concave.

Scraper with Graver Spur

These tools consist of unifacial scrapers, either end or side scrapers, with an additional carefully flaked, prominent, sharp spur or protrusion formed by the creation of adjacent shallow unifacial concavities.

Graver

Gravers are similar to borers, except that both sides of the protrusion or graver spur are formed by unifacial retouch from the same one side. Presumably, these tools were used for the purposes of scoring and engraving.

Notch

This type of unifacial tool is formed when small flakes are removed along one lateral edge of a piece in order to form a working edge along a single, relatively deep concave area. In some cases, a large percussion flake scar forms the concave edge, which is then finely retouched to form the working edge.

Burin Spall

A burin spall is the small elongated flake or sliver that is removed to produce the chisel-like edge of a burin. Burin spalls often show minimal retouch along one edge, and in some cases may have been used for engraving.

Unifacial Adze/Gouge

These pieces are identical to bifacial adze/gouges, except that they have been modified unifacially.

Backed Flake/Blade

This is a blade or flake with an apparently intentionally dulled edge formed by the removal of flakes from one lateral margin opposite a sharp edge. In some cases the backing is naturally formed by cortex.

Transverse Side scraper

These are unifacial tools with steep scraper retouch present on either the proximal or distal end of a wide flake. The working edge may be straight to convex or concave.

Circular scraper

These are unifacial tools characterized by scraper retouch around at least three sides of the tool, giving a circular shape. They are generally manufactured on flakes and have been classified elsewhere as combined double side scrapers and end scrapers.

Class 4: Unmodified Debitage

Unmodified lithic debitage is the unused residue resulting from lithic reduction practices. It usually takes the form of flakes that exhibit a platform and a bulb of percussion, flake fragments, and nondiagnostic or angular shatter. Debitage may be further distinguished by the amount of cortex remaining on the piece. Seven types of debitage are recognized: (1) primary decortication flakes; (2) secondary decortication flakes; (3) tertiary flakes; (4) bifacial thinning flakes; (5) platform-bearing flake remnants; (6) angular shatter; and

(7) flake shatter. These categories are further subdivided on the basis of size. Six size categories were distinguished using a series of nested U.S.A. Standard Testing Sieves (i.e., 25 mm, 19 mm, 12.5 mm, 9.5 mm, and 6.3 mm). Debitage was categorized as larger than the screen size through which it could not pass, but smaller than the immediately larger screen size. Thus,debitage size categories are: (1) > 25 mm; (2) 25 - 19 mm; (3) 19 - 12.5 mm; (4) 12.5 - 9.5 mm; (5) 9.5 - 6.3 mm; and (6) < 6.3 mm.

Primary Decortication Flake

Generally, these are flakes that were removed during the initial stages of cobble reduction. They are characterized by the retention of cortex on a minimum of 75 percent of their dorsal surfaces.

Secondary Decortication Flake

These are flakes that are presumed to have been removed during the initial and intermediate stages of cobble reduction. They are characterized by the retention of cortex on less than 75 percent of their dorsal surfaces.

Tertiary Flakes

These are flakes which are presumed to have been removed following cobble decortification and initial reduction. They are also known as interior flakes, lack any dorsal cortex, and are derived entirely from the interior of the cobble.

Bifacial Thinning Flakes

Bifacial thinning flakes are presumed to be the product of the final stages of bifacial reduction. They are distinctive flakes that are presumed to have been produced by softhammer reduction or pressure flaking to thin the biface for artifact manufacture. They are often small and are usually characterized by diffuse bulbs of percussion, lipped striking platforms, and a curved longitudinal cross-section.

Platform-Bearing Remnant

A platform-bearing remnant is a flake fragment which retains the original striking platform but which cannot be classified as either a primary, secondary, tertiary, or bifacial thinning flake.

Angular Shatter

The term angular shatter refers to those irregular fragments that do not express the characteristics of a typical flake. Many are unrecognizable flake fragments, while others are simply lithic chunks that were unintentionally produced during the lithic reduction process, as for example when a flake removal failed catastrophically or the striking platform was crushed by an ill-placed blow.

Flake Shatter

These are flake fragments which do not retain the striking platform.

Class 5: Utilized Flakes or Debitage

Utilized flakes ordebitage are lithic pieces that exhibit discontinuous, unsystematic, or marginal retouch of one or more edges, which presumably reflects use-wear of an informal or expedient nature, rather than intentional modification. Utilized flakes are classified on the basis of whether one or both faces show wear (i.e., unifacial, bifacial, or multiple unifacial/bifacial edges) and which side shows the wear (i.e., dorsal, ventral, or multiple dorsal/ventral edges). The form of the utilized blank includes the same flake types and size categories as for the unmodifieddebitage (see above), as well as recycled tools, aborted bifaces, and cores.

Class 6: Cores

A core is a cobble or mass of lithic material from which a number of flakes or blades have been removed, leaving negative flake scars. Six basic types of cores are recognized: (1) tested nodule/pebble; (2) unidirectional core; (3) bidirectional core; (4) multidirectional core; (5) discoidal core; and (6) indeterminate.

Cores are further subdivided on the basis of platform type (i.e., single cortex, double opposed cortex, double perpendicular cortex, multiple cortex, prepared, bifacial, and multiple) and whether they are complete or fragmentary.

Tested Nodule/Pebble

These may be considered embryonic cores, since they consist of nodules or cobbles with one or very few flakes removed. These specimens presumably represent discards from an early material selection stage of the core reduction process.

Unidirectional

These are cores or cobbles with flakes removed from a single platform edge, struck in one direction. They are often deliberately prepared cores from whichdebitage flakes have been removed to preform the core. Mesoamerican polyhedral blade cores are an extreme form of unidirectional cores.

Bidirectional

These are cores or cobbles with flakes removed from two platform edges, either opposite one another or perpendicular to one another. Bipolar cores are a special type of bidirectional cores, are characteristically lozenge, wedge, or pillow-shaped, and result from the use of an anvil to rest the core against when striking it with a hammer. They usually show indications of impact fractures on two opposing faces.

Multidirectional

These are cores or cobbles from which flakes have been removed from three or more platform edges, in more than two directions. They usually do not show any degree of preparation or preforming and may simply result from the flint-knapper's use of whatever suitable striking platform is available. In this sense, they may be thought of as expedient or random-reduction cores.

Discoidal

These are cores or cobbles which have been bifacially reduced so that a disc-shaped core remains. They may be an early stage in a bifacial reduction sequence and to some extent their recognition may be an artificial product of initial raw material form, since bifacial reduction of an elongated cobble would probably yield an artifact classified as an early stage biface, while bifacial reduction of a circular or discoidal cobble would probably yield an artifact classified as a discoidal core.

Indeterminate

These are cores or cobbles which either do not fit into any of the previously identified core types, or which are broken and too fragmentary for identification of original core type.

Class 7: Ground/pecked/battered Stone

This artifact class includes those lithic specimens that have been modified by grinding, pecking, or battering as opposed to chipping. A minimum of 15 tool types, further subdivided on the basis of completeness, are recognized: (1) abrader; (2) anvil; (3) celt; (4) hammerstone; (5) incised stone; (6) mano; (7) mano/hammerstone; (8) metate/grinding slab; (9) pendant/gorget; (10) polished stone; (11) smoothed stone; (12) sinker (fishing weight); (13) bead; (14) multipurpose; and (15) atlatl weight/bannerstone.

Abrader

These specimens are usually limestone or sandstone fragments that exhibit longitudinal, V-shaped grooves presumably resulting from their use as a polishing, smoothing, and/or sharpening stone employed in the production of bone or lithic tools.

Anvil

Anvils are cobbles with small circular indentions in the center of one or more faces, which were presumably used as a base in the processing of nuts and/or grains or possibly as anvils in a bipolar, hammer-and-anvil reduction technique.

Celt

These pieces are axe-like tools, round or oval in cross-section, that were produced by extensive pecking and grinding. These tools may be grooved or ungrooved. Like adze/gouges, they have a steeply angled bit on one end.

Hammerstone

A hammerstone is a hard nodule of lithic material, usually quartzite, which has presumably been used for direct fracturing of stone during lithic reduction. These pieces may exhibit extreme battering on one or more ends, resulting from utilization during the lithic reduction process.

Incised Stone

Incised stones are plano-convex cobbles, usually of limestone, that exhibit a series of three or more incised parallel lines near the center of the specimen. These pieces often exhibit the characteristics of having been thermally altered and presumably were used in the shaft-straightening process for darts or arrows.

Mano

A mano is an ovate-shaped nodule of quartzite or sandstone with one or more surfaces smoothed through grinding.

Mano/Hammerstone

These multiuse tools exhibit at least one flattened, ground face and one end that has been battered as the result of use as a hammerstone.

Metate/Grinding Slab

These specimens are large, thick slabs, usually of sandstone, that have been ground smooth on one or both surfaces. These surfaces may be flat or basin-shaped.

Pendant/Gorget

These pieces are ground, smoothed and polished stones, often of an exotic, nonlocal material, that exhibit one or two drilled perforations. They were presumably worn or utilized as decorative ornaments.

Polished Stone

Polished stones are small pebbles that have been ground and smoothed through purposeful modification, as opposed to modification through utilization.

Smoothed Stone

These are small pebbles, such as ocher or limestone, that appear to have been modified and shaped through human action, either deliberately or through utilization, but which fit no other category of ground stone.

Sinker (Fishing Weight)

These are medium-sized, usually water-worn pebbles with notches worked into opposite ends; they presumably were used as fishing net sinkers, although an alternative possibility is that they were used as bola stones.

Bead

Beads are small cylindrical or round pieces through which a hole has been bored. They were presumably strung with similar pieces and worn for decorative purposes.

Multipurpose

Multipurpose tools are those, such as mano/hammerstones, that were modified and/or utilized for a variety of tasks, such as grinding, polishing, abrading, etc.

Atlatl Weight/Bannerstone

The function of these relatively rare artifacts remains a matter of debate, but they appear to be atlatl weights, tools used as counterweight on spear-throwers in order to obtain greater range and accuracy from the darts. These artifacts may be winged or hourglass-shaped (similar in shape to a double-bladed executioner's axe), and most are drilled through the center, presumably to facilitate their attachment to an atlatl.

Class 8: Unworked Stone

Unworked stone refers to those materials at a site that, though they have not been formally or directly modified, have nevertheless been impacted by human activity. Two formal types are recognized: (1) cobble (manuport); and (2) burned rock.

Cobble (Manuport)

Included in this artifact class are those nodules or cobbles that are not a natural part of the site context and that were presumably brought onto the site by human activity. Despite their lack of apparent modification, they may have been used in such a way as not to leave traces for archeological identification, such as a bola stone, in plant processing, or as construction material.

Burned Rock

Burned rock includes those cobbles or rock fragments that exhibit angular fractures, crazing, pot lid fractures, or discoloration as a result of being heated. These rocks may have been used as boiling stones, griddles, or linings for earth ovens. The raw material may be limestone, sandstone, quartzite, or some other material. The term "fire-cracked rock" or the acronym "FCR" is also used for describing burned rock.

GROUP 2: PREHISTORIC CERAMICS

Class 9: Ceramics/baked Clay

The class of ceramics/baked clay artifacts includes any artifact of prehistoric origin which resulted from the burning, firing, or baking of earth or clay, either deliberately or accidentally. The types of ceramics/baked clay artifacts include: (1) ceramic vessel or vessel fragment; (2) bead; (3) pipe or pipe fragment; (4) figurine; (5) waster; (6) impressed daub; (7) baked clay—unimpressed; and (8) sherdlet.

Ceramic Vessel or Vessel Fragment

Ceramic vessel fragments, or sherds, are usually the most common type of ceramic/baked clay artifact on a prehistoric site and are simply the remains of fired clay vessels or containers (i.e., pots). Sherds are subdivided on the basis of where on the vessel they originate — rim, neck, shoulder, waist, body, base, support, handle, or flange/lug.

Bead

These are small cylindrical or round artifacts of fired clay which were originally formed with a central perforation, or through which a hole has been drilled. They were presumably strung with similar artifacts of fired clay and worn for decorative purposes.

Pipe or Pipe Fragment

These are complete or fragmentary prehistoric smoking implements made of fired clay. They are subdivided on the basis of whether or not they are complete or fragmentary, and whether or not they consist of stem or bowl fragments.

Figurine

These are modeled images of people or animals in fire clay. They are classified as either complete or fragmentary.

Waster

Wasters are vessels or sherds from vessels damaged in the manufacturing process, especially in firing. Wasters can result from overfiring, underfiring, warping, or bloating.

Impressed Daub

These are fragments of baked clay which show identifiable impression of something pressed into the clay before it was fired. These may include fragments of burned wattle-and-daub structure walls which show the impression of matting or wall coverings, or even simply evidence of the original wiping and wall smoothing, from the wall exteriors; or impressions of interior wall uprights, wattles, or lashing against which the daub was plastered. This category also includes fired mud dauber wasp's nests, the presence of which in archeological context in East Texas is presumed to indicate a former structure location.

Baked Clay — Unimpressed

These are fragments of baked clay which show no impressions or indications of origin. They may be wall daub from burned wattle-and-daub structures, they may be fired clay surfaces from hearths or ovens, or they could be of some other origin.

Sherdlet

These are small fragments of ceramics vessels, or sherds, which are less than 12.5 mm in diameter.

APPENDIX B

FRAMEWORK FOR ANALYSIS OF HISTORIC ARCHEOLOGICAL MATERIALS

by

Melissa M. Green, Stephen P. Austin, and Maynard B. Cliff

INTRODUCTION

The analysis of the historical material made use of four major analytical categories or classes of artifacts, consisting of:

1. Domestic,
2. Architectural,
3. Personal, and
4. Activities.

Unidentified metal fragments and ceramic or glass sherds which were unclassifiable as to category were placed in a separate, indeterminate category. Although the use of these artifact categories may perpetuate ideas about functional classifications, it is felt that at the survey level of research, such an analytical framework is the most efficient way to handle the artifactual data.

Major artifact categories were sorted into various subcategories, including tableware, food storage, and furnishings. These were then sorted into various classes, types, and subtypes, depending on the type of subcategory and material type. In the case of ceramics and glass, these subtypes were associated with manufacture or use dates whenever possible. The general nature of each of the major artifact categories is discussed below.

DOMESTIC ARTIFACTS

The domestic category includes artifacts related to food service (i.e., tableware) and food storage (including food preparation). The tableware subcategory subsumes some ceramic, glass, and metal artifact types. Ceramic tablewares include stoneware, refined earthenware, coarse earthenware, and porcelain types. Particular items are identified as to types and subtypes, based on temporally sensitive technological (e.g., white/whiteware, light blue tint whiteware, blue tint whiteware, blue tint ironstone, high-fired ironstone, ironstone/whiteware, transitional whiteware), decorative (e.g., decalcomania, flow blue, blue shell edge), and/or other attributes (e.g., nonvitrified, vitrified, molded), and are assigned dates of production on this basis.

Food storage items or storagewares are also subdivided as to whether they were ceramic (stoneware), glass, or metal. The stoneware items are further subdivided into types and subtypes using technological and decorative attributes, such as paste (e.g., colored) and various combinations of exterior treatment (e.g., gray bodied, bristol, cobalt, slipped, Albany slip, natural slip) and interior treatment (e.g., blue gray, Bristol, slipped, Albany slip, unglazed). These attributes form the basis for assigning production dates to individual specimens.

Glass storageware is subdivided on the basis of color (e.g., clear, manganese solarized, ash tint, amber, light amber, brown/amber, opaque, cobalt blue, blue, aqua, light green, ruby); form (generally bottle); and either decorative characteristics (e.g., etched, embossed, stippled base), manufacturing attributes (e.g., mold-made, machine-made, press-molded), or sometimes function (e.g., soda, beer/liquor, canning seal, depression glass, extract bottle). Individual items are given artifact-specific dates based on the production dates for each of its various attributes, in combination.

Finally, an unidentified domestic category subsumes the remainder of the food-related items (such as bone and shell). This material is counted but is not analyzed further. It should be noted that not all ceramics or glass artifacts fall within the domestic category. In some cases, artifacts of these materials belong within the architectural or activities categories.

The furnishings subcategory includes all nonfood service or food storage-related household items, such as furniture, stoves, and lamp glass. The furnishings subcategory often comprises only a small proportion of the total identifiable historical artifact assemblage from rural sites and the actual recovered items may vary greatly. In many cases, the majority of the artifacts classified as furnishings consist of fragments of lamp glass.

ARCHITECTURAL ARTIFACTS

The architectural category includes all items which could be related to buildings or structures. Subcategories of architectural items include such things as window glass, nails, brick, mortar and/or plaster, ceramic tile or pipe, and electrical items. Nails are further subdivided as to whether they are wrought, cut, or wire; while the brick is distinguished as to whether it is handmade, machine-made, or high-fired.

PERSONAL ARTIFACTS

The personal item category includes items of individual use, such as clothing, buttons, shoes, doll parts, cosmetic bottles, snuff bottles (identified on the basis of characteristics such as glass color, bottle shape, and lip shape), musical instruments, and smoking pipes. Usually, artifacts which can be classified in this category are rare, making this the least frequently represented category at most historical archeological sites.

ACTIVITIES ARTIFACTS

The final analytical category of historical artifacts relates to what have been called activities items. This category includes all nonhousehold items, such as those associated with transportation activities and farm-related equipment. As with personal items, this category often makes up only a small proportion of the overall assemblage of identifiable historical artifacts from a site. Activity category items include truck or tractor parts, harness buckles, fence staples, fence wire, horseshoes or horseshoe nails, and firearms cartridges. Subcategories for activities items include tools, harness and equipment, transportation, machinery, farm-related, weapons, and coal.

APPENDIX C

PREHISTORIC ARTIFACTS RECOVERED DURING THE 1993-1994 WHITE OAK CREEK MITIGATION AREA (WOCMA) SURVEY

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type		Other	Material/Temper	Qty.	Type Name/Comments
41Bw550	Unit: S.T. 1	Lev: 1					
2	Unmodified Debitage	Angular shatter	N/A		Chert	1	
41Bw550	Unit: S.T. 2	Lev: 1					
3	Unmodified Debitage	Tertiary flake	N/A		Petrified Wood	1	
41Bw551	Unit: S.T. 1	Lev: 1					
4	Unmodified Debitage	Tertiary flake	N/A		Chert	1	
41Bw551	Unit: S.T. 1	Lev: 2					
5	Unmodified Debitage	Primary flake	N/A		Chert	1	
41Bw551	Unit: S.T. 1	Lev: 3					
6	Unmodified Debitage	Primary flake	N/A		Quartzite	1	
6 1	Unfinished Biface	Dart Pt Preform	Fragment		Chert	1	
6	Unmodified Debitage	Angular shatter	N/A		Chert	1	
6	Unmodified Debitage	Angular shatter	N/A		Ogallala Quartzite	1	
41Bw551	Unit: S.T. 1	Lev: 4					
7	Unmodified Debitage	Tertiary flake	N/A		Chert	1	
41Bw551	Unit: S.T. 2	Lev: 1					
8	Unmodified Debitage	Tertiary flake	N/A		Petrified Wood	1	
8	Unmodified Debitage	Angular shatter	N/A		Quartzite	1	
8	Unmodified Debitage	Angular shatter	N/A		Silicified Wood	1	
41Bw551	Unit: S.T. 4	Lev: 1					
9	Unmodified Debitage	Angular shatter	N/A		Chert	1	
41Bw551	Unit: S.T. 7	Lev: 1					
10	Unmodified Debitage	Secondary flake	N/A		Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Bw551 11	Unit: S.T. 10 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Bw551 12	Unit: S.T. 10 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
12	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw551 13	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Chert	1	
41Bw551 14	Unit: S.T. 14 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Chert	1	
14	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Bw551 15	Unit: S.T. 14 Unmodified Debitage	Lev: 2 Primary flake	N/A	Silicified Wood	1	
15	Finished Biface Tool	Arrow Point	Complete	Chert	1	Colbert
15	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Bw551 17	Unit: S.T. 16 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	2	
17	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
126	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Bw551 18	Unit: S.T. 16 Unmodified Debitage	Lev: 4 Tertiary flake	N/A	Quartzite	1	
18	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Bw551 19	Unit: S.T. 17 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Bw551 20	Unit: S.T. 17 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Bw551 21	Unit: S.T. 17 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
41Bw552 24	Unit: S.T. 3 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Ogallala Quartzite	1	
24	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
24	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw552 23 1	Unit: S.T. 3 Utilized flakes	Lev: 3 Secondary flake	N/A	Chert	1	
23	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Bw552 25	Unit: S.T. 3 Unmodified Debitage	Lev: 4 Tertiary flake	N/A	Quartzite	1	
25	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Bw552 27	Unit: S.T. 7 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Bw553 112	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Chert	1	
29	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
29	Ceramics/Clay	Body sherd	Engraving	baked clay/sherd/grog	1	
41Bw553 127	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Primary flake	N/A	Chert	1	
127	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
30	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
30	Ceramics/Clay	Rim sherd	Brushing	grog/bone	1	
41Bw553	Unit: S.T. 1	Lev: 3				
31	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 2	Lev: 1				
32	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Bw553	Unit: S.T. 2	Lev: 2				
33	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
33	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
33	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw553	Unit: S.T. 4	Lev: 2				
34	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Bw553	Unit: S.T. 5	Lev: 1				
35	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Bw553	Unit: S.T. 5	Lev: 2				
36	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
36	Ceramics/Clay	Body sherd	Fine engraving	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 8	Lev: 1				
67	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Bw553	Unit: S.T. 9	Lev: 1				
37	Unmodified Debitage	Primary flake	N/A	Chert	1	
37	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
791	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Bw553	Unit: S.T. 9	Lev: 3				
38	Unworked Stone	Burned Rock	N/A	Quartzite	1	
38	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw553	Unit: S.T. 9	Lev: 4				
131	Unmodified Debitage	Angular shatter	N/A	Chert	1	
131	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
39	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
39	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
41Bw553	Unit: S.T. 10	Lev: 1				
44	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
44	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Bw553	Unit: S.T. 12	Lev: 1				
45	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
45	Ceramics/Clay	Body sherd	Tool punctating	baked clay/sherd/grog	1	
45	Ceramics/Clay	Rim sherd	Engraving	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 12	Lev: 2				
46	Unmodified Debitage	Secondary flake	N/A	Chert	3	
138	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	
41Bw553	Unit: S.T. 15	Lev: 2				
40	Unmodified Debitage	Secondary flake	N/A	Woodford Chert	1	
41Bw553	Unit: S.T. 16	Lev: 1				
41	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 17	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
42	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
42	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
41Bw553	Unit: S.T. 17	Lev: 2				
43	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 18	Lev: 1				
113	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
50	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Bw553	Unit: S.T. 18	Lev: 2				
114	Unmodified Debitage	Primary flake	N/A	Chert	1	
114	Unmodified Debitage	Secondary flake	N/A	Chert	1	
51	Ceramics/Clay	Baked clay	N/A	not applicable	3	
51	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
51	Ceramics/Clay	Body sherd	Incised, overhanging line	baked clay/sherd/grog	1	Coles Creek Incised, var. Coles Creek
41Bw553	Unit: S.T. 19	Lev: 1				
52	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	6	
52	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 19	Lev: 2				
135 1	Utilized flakes	Tertiary flake	N/A	Ogallala Quartzite	1	
133	Ceramics/Clay	Body sherd	Plain	mica	1	
41Bw553	Unit: S.T. 19	Lev: 3				
54	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Bw553	Unit: S.T. 20	Lev: 1				
55	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
418w553	Unit: S.T. 20	Lev: 2				
56	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
56	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
418w553	Unit: S.T. 21	Lev: 1				
57	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
418w553	Unit: S.T. 21	Lev: 2				
58	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
58	Ceramics/Clay	Rim sherd	Brushing	baked clay/sherd/grog	1	
418w553	Unit: S.T. 24	Lev: 1				
59	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
418w553	Unit: S.T. 27	Lev: 1				
60	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
418w553	Unit: S.T. 27	Lev: 2				
137	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
61	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
418w553	Unit: S.T. 28	Lev: 1				
115	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
115	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
115	Ceramics/Clay	Body sherd	Engraving	baked clay/sherd/grog	1	
418w553	Unit: S.T. 28	Lev: 2				
63	Unmodified Debitage	Secondary flake	N/A	Chert	1	
63	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
63	Unmodified Debitage	Angular shatter	N/A	Chert	2	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
125	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
41Bw553	Unit: S.T. 28	Lev: 3				
64	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
64	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Bw553	Unit: S.T. 29	Lev: 2				
65	Unmodified Debitage	Secondary flake	N/A	Chert	1	
65	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw553	Unit: S.T. 30	Lev: 2				
66	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Bw553	Unit: SURF	Lev:				
139	Unmodified Debitage	Secondary flake	N/A	Chert	1	
139	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
139	Unmodified Debitage	Angular shatter	N/A	Silicified Wood	1	
49	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
49	Ceramics/Clay	Body sherd	Engraving	grog/bone	3	
49	Ceramics/Clay	Body sherd	Neck banding	baked clay/sherd/grog	1	Nash Neck Banded
49	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Bw555	Unit: S.T. 1	Lev: 1				
69	Unmodified Debitage	Secondary flake	N/A	Chert	1	
69	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
69	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Bw555	Unit: S.T. 1	Lev: 2				
70	Unmodified Debitage	Primary flake	N/A	Chert	1	
70	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
70	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No. Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Bw555	Unit: S.T. 2 Lev: 1				
71	Unmodified Debitage	N/A	Chert	1	
71	Unmodified Debitage	N/A	Chert	1	
71	Unmodified Debitage	N/A	Quartzite	1	
41Bw555	Unit: S.T. 2 Lev: 2				
72 1	Utilized flakes	Bifacial thin. flake	Chert	4	
72	Unmodified Debitage	Angular shatter	Ogallala Quartzite	1	
41Bw555	Unit: S.T. 2 Lev: 3				
73 1	Finished Biface Tool	Dart Point	Chert	1	Edgewood
73	Unmodified Debitage	Tertiary flake	Chert	1	
41Bw555	Unit: S.T. 3 Lev: 1				
88	Unmodified Debitage	Angular shatter	Chert	1	
41Bw555	Unit: S.T. 3 Lev: 2				
90	Unworked Stone	Burned Rock	Sandstone	1	
90	Unmodified Debitage	Angular shatter	Chert	3	
41Bw555	Unit: S.T. 3 Lev: 3				
91 1	Finished Biface Tool	Dart Point	Quartzite	1	
91	Unmodified Debitage	Angular shatter	Chert	1	
41Bw555	Unit: S.T. 4 Lev: 2				
89	Ceramics/Clay	Body sherd	baked clay/sherd/grog	1	
41Mx48	Unit: S.T. 1 Lev: 1				
132	Unmodified Debitage	Tertiary flake	Quartzite	2	
75	Ceramics/Clay	Body sherd	baked clay/sherd/grog	3	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Unit: S.T.	Lev:	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx48		Unit: S.T. 1	Lev: 2					
76	Unmodified Debitage		Tertiary flake	N/A	Chert	2		
76	Unmodified Debitage		Angular shatter	N/A	Quartzite	1		
41Mx48		Unit: S.T. 1	Lev: 3					
77	Unmodified Debitage		Secondary flake	N/A	Quartzite	1		
77	Unmodified Debitage		Tertiary flake	N/A	Chert	1		
77	Unmodified Debitage		Tertiary flake	N/A	Quartzite	1		
77	Unmodified Debitage		Tertiary flake	N/A	Ogallala Quartzite	2		
77 1	Uniface		End Scraper	Complete	Palmwood	1		
41Mx48		Unit: S.T. 1	Lev: 4					
78	Unmodified Debitage		Angular shatter	N/A	Chert	1		
78	Unmodified Debitage		Angular shatter	N/A	Quartzite	2		
41Mx48		Unit: S.T. 5	Lev: 1					
79	Unmodified Debitage		Secondary flake	N/A	Ogallala Quartzite	1		
79	Unmodified Debitage		Tertiary flake	N/A	Quartzite	1		
79	Unmodified Debitage		Angular shatter	N/A	Chert	1		
41Mx48		Unit: S.T. 5	Lev: 2					
80	Unmodified Debitage		Secondary flake	N/A	Quartzite	1		
80	Unmodified Debitage		Tertiary flake	N/A	Ogallala Quartzite	1		
80 1	Unfinished Biface		Dart Pt Preform	Fragment	Chert	1		
41Mx48		Unit: S.T. 6	Lev: 2					
81	Unmodified Debitage		Tertiary flake	N/A	Chert	1		
41Mx48		Unit: S.T. 8	Lev: 1					
82	Unmodified Debitage		Secondary flake	N/A	Chert	1		

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
82	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx48	Unit: S.T. 8	Lev: 2				
83	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx48	Unit: S.T. 9	Lev: 2				
84	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Mx48	Unit: S.T. 10	Lev: 1				
85	Unmodified Debitage	Primary flake	N/A	Chert	1	
41Mx48	Unit: SURF	Lev:				
120 1	Unfinished Biface	Dart Pt Preform	Fragment	Quartzite	1	Gary Point Preform
87	Ceramics/Clay	Baked clay	N/A	not applicable	2	
41Mx49	Unit: S.T. 1	Lev: 1				
122	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
147	Ceramics/Clay	Baked clay	N/A	not applicable	1	
41Mx49	Unit: S.T. 2	Lev: 2				
142	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
93	Ceramics/Clay	Baked clay	N/A	not applicable	2	
41Mx49	Unit: S.T. 4	Lev: 1				
96	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Mx49	Unit: S.T. 6	Lev: 1				
190	Ceramics/Clay	Impressed daub	N/A	not applicable	1	
190	Ceramics/Clay	Baked clay	N/A	not applicable	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx49	Unit: S.T. 6	Lev: 2				
191	Unworked Stone	Burned Rock	N/A	Quartzite	1	
191	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
191	Unmodified Debitage	Angular shatter	N/A	Chert	1	
191	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
191 1	Uniface	Side Scraper	N/A	Chert	1	
41Mx49	Unit: S.T. 6	Lev: 3				
192	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
192	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx49	Unit: S.T. 8	Lev: 1				
677	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	2	
41Mx49	Unit: S.T. 8	Lev: 2				
194	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
194	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
194	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx49	Unit: S.T. 9	Lev: 1				
195	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx49	Unit: S.T. 9	Lev: 2				
196	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx50	Unit: SURF	Lev:				
107	Finished Biface Tool	Dart Point	Proximal/Medial	Chert	1	Elam
41Mx51	Unit: S.T. 1	Lev: 1				
104	Ceramics/Clay	Body sherd	Fingernail punctating	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
104	Ceramics/Clay	Rim sherd	Engraving	baked clay/sherd/grog	1	
41Mx51	Unit: S.T. 1	Lev: 2				
103	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
103	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Mx51	Unit: S.T. 2	Lev: 1				
105	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
105	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
105	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx51	Unit: S.T. 2	Lev: 2				
99	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Mx51	Unit: S.T. 3	Lev: 2				
136	Unworked Stone	Burned Rock	N/A	Quartzite	1	
101	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx51	Unit: S.T. 3	Lev: 3				
128	Unmodified Debitage	Angular shatter	N/A	Chert	1	
102	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx51	Unit: S.T. 5	Lev: 1				
100	Ceramics/Clay	Body sherd	Punctated applique	baked clay/sherd/grog	1	
41Mx51	Unit: S.T. 9	Lev: 2				
106	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	
41Mx51	Unit: S.T. 11	Lev: 1				
162	Unmodified Debitage	Secondary flake	N/A	Chert	1	
747	Ceramics/Clay	Rim sherd	Engraving	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx51 163	Unit: S.T. 11 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
163	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Mx51 164	Unit: S.T. 13 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	1	
41Mx51 165	Unit: S.T. 14 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	1	
41Mx51 166	Unit: S.T. 14 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
166	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
166	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx51 167	Unit: S.T. 14 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Quartzite	1	
41Mx51 168	Unit: S.T. 15 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	3	
41Mx51 169	Unit: S.T. 17 Ceramics/Clay	Lev: 1 Body sherd	Fine brushing	baked clay/sherd/grog	1	
41Mx51 170	Unit: S.T. 17 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
744	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Mx52 109	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
109	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx52	Unit: S.T. 3	Lev: 1				
110	Unmodified Debitage	Secondary flake	N/A	Chert	1	
110	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx52	Unit: SURF	Lev:				
108 1	Finished Biface Tool	Dart Point	Complete	Silicified Wood	1	Edgewood
41Mx53	Unit: S.T. 6	Lev: 1				
148	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx74	Unit: S.T. 1	Lev: 1				
172	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
172	Unmodified Debitage	Angular shatter	N/A	Chert	1	
172	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 1	Lev: 2				
173	Unmodified Debitage	Primary flake	N/A	Quartzite	2	
173	Unmodified Debitage	Secondary flake	N/A	Chert	2	
173	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
173	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
173	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
173	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Mx74	Unit: S.T. 1	Lev: 3				
174	Unmodified Debitage	Secondary flake	N/A	Chert	3	
174	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx74	Unit: S.T. 1	Lev: 4				
175 1	Unfinished Biface	Aborted, Early	Fragment	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
175	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 2	Lev: 1				
176	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
176	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
176	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 2	Lev: 2				
177	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Mx74	Unit: S.T. 2	Lev: 3				
178 1	Finished Biface Tool	Dart Point	Tip	Ogallala Quartzite	1	
178	Unworked Stone	Burned Rock	N/A	Sandstone	1	
178	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx74	Unit: S.T. 2	Lev: 4				
179	Unmodified Debitage	Primary flake	N/A	Hematite	1	
179	Unmodified Debitage	Secondary flake	N/A	Chert	1	
179	Unmodified Debitage	Tertiary flake	N/A	Petrified Wood	1	
179	Unmodified Debitage	Angular shatter	N/A	Chert	2	
41Mx74	Unit: S.T. 5	Lev: 1				
180	Unmodified Debitage	Secondary flake	N/A	Chert	1	
180	Unmodified Debitage	Tertiary flake	N/A	Petrified Wood	1	
180	Unmodified Debitage	Angular shatter	N/A	Chert	1	
180	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
180	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
41Mx74	Unit: S.T. 5	Lev: 2				
181	Unmodified Debitage	Secondary flake	N/A	Chert	1	
181	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Tempor	Qty.	Type Name/Comments
181	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
181	Utilized flakes	Bifacial thin. flake	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 5	Lev: 3				
182	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 9	Lev: 1				
183	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
41Mx74	Unit: S.T. 9	Lev: 2				
184	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Mx74	Unit: S.T. 9	Lev: 3				
185	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Mx74	Unit: S.T. 11	Lev: 1				
186	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
186	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
186	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 12	Lev: 1				
187	Unmodified Debitage	Primary flake	N/A	Chert	1	
187	Unworked Stone	Burned Rock	N/A	Sandstone	1	
187	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
187	Unmodified Debitage	Angular shatter	N/A	Chert	1	
187	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx74	Unit: S.T. 13	Lev: 2				
188	Finished Biface Tool	Arrow Point	Complete	Ogallala Quartzite	1	Roman/Agee
188	Unmodified Debitage	Secondary flake	N/A	Chert	1	
188	Unmodified Debitage	Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx74 189	Unit: S.T. 14 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
189	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx74 758	Unit: S.T. 15 Ceramics/Clay	Lev: 2 Body sherd	Plain	baked clay/sherd/grog	1	
41Mx75 201	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
201	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
201	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx75 202	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
41Mx75 203	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Chert	1	
41Mx76 204	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Novaculite	1	
41Mx76 205	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Silicified Wood	1	
205	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx76 206	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Ogallala Quartzite	1	
41Mx76 207	Unit: S.T. 3 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx76 208	Unit: S.T. 4 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
41Mx76 209	Unit: S.T. 4 Unmodified Debitage	Lev: 4 Angular shatter	N/A	Quartzite	1	
41Mx76 210	Unit: S.T. 6 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Mx76 211	Unit: S.T. 8 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
41Mx77 219	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	2	
41Mx77 220	Unit: S.T. 2 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	5	
41Mx77 221	Unit: S.T. 2 Ceramics/Clay	Lev: 2 Body sherd	Brushing	baked clay/sherd/grog	1	
41Mx77 221	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	3	
41Mx77 222	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx77 223	Unit: S.T. 6 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	
41Mx77 224	Unit: S.T. 6 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx77 226	Unit: S.T. 8 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	1	
41Mx78 212	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Mx78 213 1	Unit: S.T. 7 Core	Lev: 1 Fragment/Indet	Multidirectional	Chert	1	
41Mx78 214	Unit: S.T. 7 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx79 227	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx79 227	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	
41Mx79 230	Unit: S.T. 6 Ceramics/Clay	Lev: 1 Sherd fragment	Plain	baked clay/sherd/grog	1	
41Mx79 229 1	Unit: S.T. 6 Unfinished Biface	Lev: 2 Aborted, Early	Complete	Chert	1	
229	Unmodified Debitage	Primary flake	N/A	Chert	1	
229	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
725	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
725	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Mx79 228	Unit: S.T. 6 Ceramics/Clay	Lev: 3 Body sherd	Plain	baked clay/sherd/grog	2	
228	Ceramics/Clay	Body sherd	Incised	baked clay/sherd/grog	1	
228	Ceramics/Clay	Body sherd	Incised	baked clay/sherd/grog	1	Crockett Curvilinear

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx79 232	Unit: S.T. 9 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	2	
41Mx79 233	Unit: S.T. 9 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	silicified wood	1	
233	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
724	Ceramics/Clay	Baked clay	N/A	not applicable	1	
724	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx79 234	Unit: S.T. 11 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Mx79 235	Unit: S.T. 12 Utilized flakes	Lev: 1 Bifacial thin. flake	N/A	Chert	1	
41Mx79 236	Unit: S.T. 12 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
236	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
236	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx79 237	Unit: S.T. 13 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Quartzite	1	
41Mx79 547	Unit: S.T. 14 Unmodified Debitage	Lev: 1 Primary flake	N/A	Chert	1	
41Mx79 546	Unit: S.T. 14 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	

Incised

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx79 548	Unit: S.T. 14 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
41Mx79 545	Unit: S.T. 16 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx79 549	Unit: S.T. 17 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
549	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
549	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
41Mx79 550	Unit: S.T. 17 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
41Mx79 552 1	Unit: S.T. 19 Unfinished Biface	Lev: 2 Aborted, Early	Fragment	Chert	1	
41Mx79 553	Unit: S.T. 22 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Mx79 551	Unit: S.T. 22 Unmodified Debitage	Lev: 3 Primary flake	N/A	Quartzite	1	
551	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Mx79 555	Unit: S.T. 24 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Ogallala Quartzite	1	
41Mx79 556	Unit: S.T. 26 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Chert	1	
41Mx79	Unit: S.T. 27	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
557	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx79	Unit: S.T. 27	Lev: 2				
558	Unmodified Debitage	Secondary flake	N/A	Chert	1	
558	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
558	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx79	Unit: S.T. 30	Lev: 2				
559	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx79	Unit: S.T. 33	Lev: 1				
560	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx79	Unit: S.T. 36	Lev: 2				
561	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Mx79	Unit: S.T. 36	Lev: 4				
562	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx79	Unit: S.T. 37	Lev: 2				
563	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Mx79	Unit: S.T. 40	Lev: 1				
564	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx79	Unit: S.T. 40	Lev: 2				
565	Unmodified Debitage	Angular shatter	N/A	Novaculite	1	
41Mx79	Unit: S.T. 49	Lev: 2				
566	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx79	Unit: S.T. 49	Lev: 3				
567	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
567	Unmodified Debitage	Tertiary flake	N/A	Siltstone	1	
567	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx79	Unit: S.T. 49	Lev: 4				
568	Unmodified Debitage	Primary flake	N/A	Silicified Wood	1	
568	Unmodified Debitage	Secondary flake	N/A	Chert	1	
568	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Mx79	Unit: SURF	Lev:				
238	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Mx80	Unit: S.T. 1	Lev: 2				
215	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
215	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
215	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Mx80	Unit: S.T. 2	Lev: 1				
216	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Mx80	Unit: S.T. 2	Lev: 3				
217	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Mx80	Unit: S.T. 2	Lev: 4				
218	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx81	Unit: S.T. 1	Lev: 1				
305	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Mx81	Unit: S.T. 2	Lev: 2				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty. Type Name/Comments
306	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1
41Mx81	Unit: S.T. 3	Lev: 1			
307	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1
41Mx81	Unit: S.T. 4	Lev: 1			
308	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1
41Mx81	Unit: S.T. 5	Lev: 2			
309	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1
41Mx81	Unit: S.T. 8	Lev: 3			
310	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1
41Mx81	Unit: S.T. 9	Lev: 1			
311	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1
41Mx81	Unit: S.T. 12	Lev: 1			
312	Unmodified Debitage	Secondary flake	N/A	Chert	1
41Mx81	Unit: S.T. 12	Lev: 3			
313	Unmodified Debitage	Secondary flake	N/A	Quartzite	1
41Mx81	Unit: SURF	Lev:			
304	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1
41Mx82	Unit: S.T. 1	Lev: 1			
249	Unmodified Debitage	Secondary flake	N/A	Quartzite	1
249	Unmodified Debitage	Tertiary flake	N/A	Chert	1
249 1	Utilized flakes	Bifacial thin. flake	N/A	Chert	1
249	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx82 250	Unit: S.T. 8 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx82	Unit: SURF	Lev:				
251 2	Finished Biface Tool	Dart Point	Proximal/Medial	Ogallala Quartzite	1	Edgewood
251 4	Unfinished Biface	Aborted, Late	Fragment	Chert	1	
251 3	Utilized flakes	Secondary flake	N/A	Chert	1	
251	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
251 1	Utilized flakes	Tertiary flake	N/A	Ogallala Quartzite	1	
251	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx83 314	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Chert	1	
41Mx83 315	Unit: S.T. 1 Unmodified Debitage	Lev: 4 Secondary flake	N/A	Quartzite	1	
41Mx83 316	Unit: S.T. 2 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Mx84 317	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
41Mx84 318	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
318	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
318	Unmodified Debitage	Tertiary flake	N/A	Chert	3	
41Mx84 319	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx84 321	Unit: S.T. 4 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
41Mx84 322	Unit: S.T. 4 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Quartzite	1	
41Mx84 323	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Mx84 324	Unit: S.T. 6 Unmodified Debitage	Lev: 2 Primary flake	N/A	Quartzite	1	
41Mx84 325	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	
41Mx85 327	Unit: S.T. 1 Utilized flakes	Lev: 2 Tertiary flake	N/A	Chert	1	
41Mx85 328	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Primary flake	N/A	Ogallala Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Primary flake	N/A	Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Silicified Wood	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx85 329	Unit: S.T. 2 Unmodified Debitage	Lev: 3 Secondary flake	Indet. fragment	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCHA 5
Prehistoric Artifact Data

Bag Art No. No. Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx85 338	Unit: S.T. 4 Unmodified Debitage	Lev: 2 Angular shatter	N/A	1	Chert
41Mx85 330	Unit: S.T. 10 Unmodified Debitage	Lev: 1 Angular shatter	N/A	1	Ogallala Quartzite
41Mx85 331	Unit: S.T. 13 Unmodified Debitage	Lev: 2 Secondary flake	N/A	1	Chert
41Mx85 331	Unmodified Debitage	Tertiary flake	N/A	1	Quartzite
41Mx85 332	Unit: S.T. 17 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	1	Petrified Wood
41Mx85 332	Unmodified Debitage	Angular shatter	N/A	1	Quartzite
41Mx85 332	Unmodified Debitage	Bifacial thinning	N/A	1	Chert
41Mx85 333	Unit: S.T. 17 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	1	Chert
41Mx85 333	Unmodified Debitage	Tertiary flake	N/A	1	Quartzite
41Mx85 334	Unit: S.T. 17 Unworked Stone	Lev: 3 Burned Rock	N/A	1	Quartzite
41Mx85 334	Unmodified Debitage	Tertiary flake	N/A	1	Quartzite
41Mx85 334	Unmodified Debitage	Angular shatter	N/A	1	Ogallala Quartzite
41Mx85 335	Unit: S.T. 18 Unmodified Debitage	Lev: 2 Secondary flake	N/A	1	Quartzite
41Mx85 335	Unmodified Debitage	Tertiary flake	N/A	2	Ogallala Quartzite
41Mx85 335	Unmodified Debitage	Angular shatter	N/A	1	Chert
41Mx86 337	Unit: S.T. 3 Unmodified Debitage	Lev: 1 Secondary flake	N/A	1	Quartzite

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
337	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Mx86	Unit: SURF	Lev:				
336	1 Finished Biface Tool	Dart Point	Tip	Ogallala Quartzite	1	
41Mx87	Unit: S.T.	Lev: 1				
437	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx87	Unit: S.T.	Lev: 3				
438	1 Unfinished Biface	Unident Fragment	Fragment	Chert	1	
41Mx87	Unit: S.T.	Lev: 1				
439	1 Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	same vessel as 440-1 and 441-1
41Mx87	Unit: S.T.	Lev: 2				
440	1 Ceramics/Clay	Body sherd	Punctated/Incised	baked clay/sherd/grog	2	same vessel as 439-1 and 441-1
41Mx87	Unit: S.T.	Lev: 3				
441	1 Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	same vessel as 439-1 and 440-1
41Mx87	Unit: S.T.	Lev: 2				
442	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	1	
41Mx87	Unit: S.T.	Lev: 3				
443	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	1	
443	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	1	
41Mx88	Unit: S.T.	Lev: 2				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
447	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
447	Ceramics/Clay	Body sherd	Brushing	grog/bone	1	
41Mx88	Unit: S.T. 1	Lev: 3				
448	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	5	
448	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	1	
448	Ceramics/Clay	Body sherd	Punctated applique	baked clay/sherd/grog	1	
41Mx88	Unit: S.T. 1	Lev: 4				
449	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
449	Ceramics/Clay	Body sherd	Punctated applique	baked clay/sherd/grog	1	Pease Brushed Incised
449	Ceramics/Clay	Rim sherd	Brushing	baked clay/sherd/grog	1	
449	Ceramics/Clay	Rim sherd	Brushing/Punctating	grog/bone	1	
41Mx88	Unit: S.T. 2	Lev: 2				
450	Unworked Stone	Burned Rock	N/A	Quartzite	1	
41Mx88	Unit: S.T. 2	Lev: 4				
451	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Mx88	Unit: S.T. 7	Lev: 3				
452	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx89	Unit: S.T. 1	Lev: 1				
453	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx89	Unit: S.T. 1	Lev: 2				
454	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx89	Unit: S.T. 2	Lev: 1				
455	Unmodified Debitage	Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx89	Unit: S.T. 2	Lev: 2				
456	Unmodified Debitage	Secondary flake	N/A	Chert	1	
456	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx89	Unit: S.T. 5	Lev: 1				
457	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx89	Unit: S.T. 6	Lev: 1				
458	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx89	Unit: S.T. 6	Lev: 2				
459	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
459	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx89	Unit: S.T. 9	Lev: 1				
460	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Mx90	Unit: S.T. 1	Lev: 1				
462	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
462	Unmodified Debitage	Angular shatter	N/A	Chert	1	
462	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx90	Unit: S.T. 1	Lev: 2				
463	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
41Mx90	Unit: S.T. 2	Lev: 2				
464 1	Unfinished Biface	Unident Fragment	Fragment	Chert	1	
41Mx90	Unit: S.T. 2	Lev: 3				
465	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
723	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
41Mx90	Unit: S.T. 2	Lev: 4				
466	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
466	Unmodified Debitage	Angular shatter	N/A	Chert	2	
466	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx90	Unit: S.T. 9	Lev: 1				
467	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx90	Unit: S.T. 9	Lev: 3				
468	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
41Mx90	Unit: S.T. 9	Lev: 4				
469	Unworked Stone	Burned Rock	N/A	Quartzite	1	
469	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
469	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
469	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx90	Unit: S.T. 10	Lev: 1				
470	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx90	Unit: S.T. 10	Lev: 2				
471	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx90	Unit: S.T. 10	Lev: 3				
472	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
472	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
472	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
472	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
472	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No. Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx90	Unit: S.T. 11	Lev: 3			
473	Unmodified Debitage	Secondary flake	N/A		Chert
473	Unmodified Debitage	Secondary flake	N/A	2	Quartzite
473	Unmodified Debitage	Secondary flake	N/A	2	Ogallala Quartzite
473	Unmodified Debitage	Tertiary flake	N/A	1	Silicified Wood
473	Unmodified Debitage	Angular shatter	N/A	1	Quartzite
473	Unmodified Debitage	Angular shatter	N/A	1	Ogallala Quartzite
41Mx91	Unit: S.T. 1	Lev: 1			
588	Unmodified Debitage	Angular shatter	N/A	1	Quartzite
41Mx91	Unit: S.T. 1	Lev: 3			
589	Unmodified Debitage	Secondary flake	N/A	1	Quartzite
589	Unmodified Debitage	Angular shatter	N/A	1	Quartzite
41Mx91	Unit: S.T. 2	Lev: 2			
590	Unmodified Debitage	Angular shatter	N/A	1	Ogallala Quartzite
41Mx91	Unit: S.T. 5	Lev: 1			
591	Ceramics/Clay	Body sherd	Plain	1	baked clay/sherd/grog
41Mx91	Unit: S.T. 5	Lev: 2			
592	Unmodified Debitage	Angular shatter	N/A	1	Silicified Wood
592	Unmodified Debitage	Bifacial thinning	N/A	1	Quartzite
41Mx91	Unit: S.T. 9	Lev: 1			
593	Unmodified Debitage	Angular shatter	N/A	1	Chert
41Mx92	Unit: S.T. 1	Lev: 2			
597	Unmodified Debitage	Primary flake	N/A	1	Quartzite

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
597 1	Uniface	Gossett Uniface	Complete	Silicified Wood	1	Gossett Uniface
41Mx92	Unit: S.T. 1	Lev: 3				
598	Unmodified Debitage	Secondary flake	N/A	Chert	1	
598	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
598 1	Unfinished Biface	Dart Pt Preform	Fragment	Quartzite	1	
41Mx92	Unit: S.T. 1	Lev: 4				
599	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
599	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
599	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx92	Unit: S.T. 2	Lev: 1				
600	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx92	Unit: S.T. 2	Lev: 2				
601	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
41Mx92	Unit: S.T. 4	Lev: 3				
603 2	Finished Biface Tool	Dart Point	Complete	Chert	1	
603 1	Finished Biface Tool	Dart Point	Complete	Silicified Wood	1	
603	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx93	Unit: S.T. 1	Lev: 1				
605	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx93	Unit: S.T. 5	Lev: 1				
606	Unmodified Debitage	Primary flake	N/A	Chert	1	
606 1	Core	Fragment/Indet	N/A	Quartzite	1	
41Mx93	Unit: S.T. 6	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
607	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx93	Unit: S.T. 7	Lev: 1				
608	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
41Mx93	Unit: S.T. 8	Lev: 1				
609	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx93	Unit: SURF	Lev:				
604	Unmodified Debitage	Primary flake	N/A	Chert	1	
604	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Mx94	Unit: SURF	Lev:				
668	Finished Biface Tool	Dart Point	Mid-section	Chert	1	Indeterminate
667	Uniface	Side Scraper	Complete	Chert	1	
41Mx95	Unit: S.T. 1	Lev: 1				
669	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
41Mx95	Unit: S.T. 1	Lev: 2				
670	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
670	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx95	Unit: S.T. 2	Lev: 1				
671	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx95	Unit: S.T. 6	Lev: 1				
672	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx96	Unit: S.T. 1	Lev: 2				
674	Unmodified Debitage	Secondary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
750 1	Ceramics/Clay	Body sherd	Punctating	baked clay/sherd/grog	1	
750 1	Ceramics/Clay	Body sherd	Punctated applique	baked clay/sherd/grog	1	McKinney Plain?
750	Ceramics/Clay	Rim sherd	Fingernail punctating	grog/bone	1	
41Mx96	Unit: S.T. 1	Lev: 3				
675	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
752	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx96	Unit: S.T. 2	Lev: 3				
676	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Mx97	Unit: S.T. 1	Lev: 2				
688	Unmodified Debitage	Secondary flake	N/A	Chert	1	
766	Ceramics/Clay	Baked clay	N/A	not applicable	1	
766	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx97	Unit: S.T. 1	Lev: 3				
689	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
689	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
763	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Mx97	Unit: S.T. 1	Lev: 4				
690	Unmodified Debitage	Secondary flake	N/A	Silicified Wood	1	
759	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx97	Unit: S.T. 2	Lev: 1				
691	Unmodified Debitage	Secondary flake	N/A	Chert	1	
761	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
761	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx97	Unit: S.T. 2	Lev: 3				
693	Unmodified Debitage	Secondary flake	N/A	Chert	1	
693	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
760	Ceramics/Clay	Body sherd	Neck banding	baked clay/sherd/grog	1	cf. Nash Neck Banded
41Mx97	Unit: S.T. 2	Lev: 4				
694	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
694	Unmodified Debitage	Angular shatter	N/A	Chert	1	
765	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
765	Ceramics/Clay	Body sherd	Neck banding	baked clay/sherd/grog	1	cf. Nash Neck Banded?
41Mx97	Unit: S.T. 3	Lev: 2				
695	Ceramics/Clay	Body sherd	Engraving	baked clay/sherd/grog	1	same vessel as 696-1
41Mx97	Unit: S.T. 3	Lev: 3				
696	Ceramics/Clay	Body sherd	Engraving	baked clay/sherd/grog	1	same vessel as 695-1
41Mx97	Unit: S.T. 3	Lev: 4				
697	Unmodified Debitage	Tertiary flake	N/A	Mudstone	1	
41Mx97	Unit: S.T. 3	Lev: 5				
698	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx97	Unit: S.T. 6	Lev: 1				
699	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Mx97	Unit: S.T. 6	Lev: 2				
700	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx97	Unit: S.T. 6	Lev: 3				
701	Unmodified Debitage	Angular shatter	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
701	Unmodified Debitage	Angular shatter	N/A	Silicified Wood	1	
701	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Mx97	Unit: S.T. 6	Lev: 4				
702	Unmodified Debitage	Angular shatter	N/A	Chert	1	
764	Ceramics/Clay	Body sherd	Engraving	baked clay/sherd/grog	1	
41Mx97	Unit: S.T. 12	Lev: 3				
703	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx98	Unit: S.T. 1	Lev: 2				
704	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx98	Unit: S.T. 1	Lev: 3				
705	Unmodified Debitage	Primary flake	N/A	Sandstone	1	
705	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Mx98	Unit: S.T. 1	Lev: 4				
706	Ceramics/Clay	Baked clay	N/A	not applicable	3	
41Mx98	Unit: S.T. 2	Lev: 3				
707	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Mx98	Unit: S.T. 3	Lev: 1				
708	Unmodified Debitage	Angular shatter	N/A	Chert	2	
41Mx98	Unit: S.T. 3	Lev: 2				
709	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
709	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Mx98	Unit: S.T. 3	Lev: 3				
710	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
710	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
710	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx98	Unit: S.T. 3	Lev: 4				
711	Unmodified Debitage	Angular shatter	N/A	Chert	1	
711	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Mx98	Unit: S.T. 4	Lev: 2				
712 1	Unfinished Biface	Unident Fragment	Fragment	Chert	1	
41Mx98	Unit: S.T. 4	Lev: 3				
713	Unmodified Debitage	Secondary flake	N/A	Chert	1	
713	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Mx98	Unit: S.T. 4	Lev: 4				
714	Unmodified Debitage	Primary flake	N/A	Chert	1	
714	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
714	Unmodified Debitage	Secondary flake	N/A	Quartzite	2	
714	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
714	Unmodified Debitage	Angular shatter	N/A	Chert	1	
714	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
714	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Mx98	Unit: S.T. 8	Lev: 1				
715	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Mx98	Unit: S.T. 9	Lev: 1				
716	Unmodified Debitage	Angular shatter	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Mx98 718 1	Unit: S.T. 9 Finished Biface Tool	Lev: 3 Dart Point	Proximal/Medial	Ogallala Quartzite	1	Palmillas
41Mx98 719	Unit: S.T. 10 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Quartzite	1	
41Mx98 720	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Ogallala Quartzite	1	
41Mx98 757	Unit: S.T. 10 Unmodified Debitage	Lev: 4 Tertiary flake	N/A	Quartzite	1	
721	Ceramics/Clay	Baked clay	N/A	not applicable	1	
41Mx98 722	Unit: S.T. 10 Unmodified Debitage	Lev: 5 Secondary flake	N/A	Quartzite	1	
41Tt661 239	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Chert	1	
41Tt661 243	Unit: S.T. 8 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Ogallala Quartzite	1	
41Tt662 244	Unit: S.T. 1 Ceramics/Clay	Lev: 1 Body sherd	Plain	baked clay/sherd/grog	1	
41Tt662 245	Unit: S.T. 2 Utilized flakes	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
41Tt662 246	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Chert	2	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt662	Unit: S.T. 2	Lev: 3				
247	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
247	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
41Tt662	Unit: S.T. 6	Lev: 2				
248	Unmodified Debitage	Thin flake frag	N/A	Ogallala Quartzite	1	
41Tt662	Unit: S.T. 10	Lev: 1				
252	Unmodified Debitage	Angular shatter	N/A	Silicified Wood	1	
41Tt662	Unit: S.T. 10	Lev: 2				
253	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Tt662	Unit: S.T. 10	Lev: 3				
254	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt662	Unit: S.T. 11	Lev: 1				
255	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
255	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt663	Unit: S.T. 1	Lev: 1				
256	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
256	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt663	Unit: S.T. 1	Lev: 3				
257	Unworked Stone	Burned Rock	N/A	Quartzite	1	
257	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt663	Unit: S.T. 1	Lev: 4				
258	Unworked Stone	Burned Rock	N/A	Quartzite	1	
258	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt663 259	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Quartzite	1	
41Tt663 260	Unit: S.T. 3 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Chert	1	
260	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt663 261	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Silicified Wood	1	
261	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
261	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
261	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
261	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt663 262	Unit: S.T. 5 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Petrified Wood	1	
41Tt663 263	Unit: S.T. 6 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	
41Tt663 264	Unit: S.T. 9 Unmodified Debitage	Lev: 1 Primary flake	N/A	Quartzite	1	
264	Unmodified Debitage	Secondary flake	N/A	Quartzite	3	
264	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
264	Unmodified Debitage	Tertiary flake	N/A	Quartzite	6	
264	Unmodified Debitage	Tertiary flake	N/A	Petrified Wood	1	
264	Unmodified Debitage	Angular shatter	N/A	Chert	1	
264	Unmodified Debitage	Angular shatter	N/A	Quartzite	3	
264	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	2	
749	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt663	Unit: S.T. 9	Lev: 2				
265 2	Unfinished Biface	Aborted, Early	Fragment	Quartzite	1	
265	Unmodified Debitage	Primary flake	N/A	Quartzite	2	
265 1	Finished Biface Tool	Arrow Point	Complete	Ogallala Quartzite	1	Friley
265	Unmodified Debitage	Secondary flake	N/A	Quartzite	9	
265	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	3	
265	Unmodified Debitage	Secondary flake	N/A	Iron Concretion	1	
265	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
265	Unmodified Debitage	Tertiary flake	N/A	Quartzite	8	
265	Unmodified Debitage	Tertiary flake	N/A	Petrified Wood	1	
265	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	4	
265	Unmodified Debitage	Angular shatter	N/A	Quartzite	5	
265	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	3	
265	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
265	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
754	Ceramics/Clay	Baked clay	N/A	not applicable	1	
754	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt663	Unit: S.T. 9	Lev: 3				
266 1	Unfinished Biface	Aborted, Early	Fragment	Ogallala Quartzite	1	
266	Unmodified Debitage	Primary flake	N/A	Quartzite	2	
266	Unmodified Debitage	Secondary flake	N/A	Chert	1	
266	Unmodified Debitage	Secondary flake	N/A	Quartzite	6	
266	Unmodified Debitage	Secondary flake	N/A	Petrified Wood	1	
266	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	3	
266	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
266	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
266	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	2	
266	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
266	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt663	Unit: S.T. 9	Lev: 4				
267	Unmodified Debitage	Secondary flake	N/A	Chert	1	
267	Unmodified Debitage	Secondary flake	N/A	Quartzite	3	
267	Unmodified Debitage	Tertiary flake	N/A	Petrified Wood	1	
267	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt663	Unit: S.T. 10	Lev: 1				
269	Unworked Stone	Burned Rock	N/A	Quartzite	1	
269	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
269	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
269	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
733 1	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	2	
41Tt663	Unit: S.T. 10	Lev: 2				
270	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
270	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
270	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
734	Ceramics/Clay	Baked clay	N/A	not applicable	1	
41Tt663	Unit: S.T. 11	Lev: 1				
268	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
268	Unmodified Debitage	Angular shatter	N/A	Chert	1	
268	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt663	Unit: S.T. 13	Lev: 1				
271 1	Finished Biface Tool	Indet Point	Base/Stem	Chert	1	
271	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
271	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No. Class	Type	Other	Material/Temper	qty.	Type Name/Comments
41Tt663 Unit: S.T. 13	Lev: 2				
272 Unmodified Debitage	Primary flake	N/A	Quartzite	1	
272 Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
272 Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	3	
272 Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	2	
41Tt663 Unit: S.T. 14	Lev: 1				
273 Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
273 Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
273 Unmodified Debitage	Tertiary flake	N/A	Chert	1	
273 Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
273 Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt663 Unit: S.T. 14	Lev: 2				
274 1 Finished Biface Tool	Indet Point	Base/Stem	Ogallala Quartzite	1	
274 Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
41Tt663 Unit: S.T. 15	Lev: 1				
275 Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt663 Unit: S.T. 16	Lev: 1				
276 Unmodified Debitage	Primary flake	N/A	Quartzite	1	
276 Unmodified Debitage	Secondary flake	N/A	Quartzite	2	
276 Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
276 Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt663 Unit: S.T. 17	Lev: 1				
277 Unmodified Debitage	Primary flake	N/A	Quartzite	2	
277 1 Finished Biface Tool	Arrow Point	Complete	Ogallala Quartzite	1	Friley
277 Unworked Stone	Burned Rock	N/A	Quartzite	1	
277 Unmodified Debitage	Angular shatter	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
277	Unmodified Debitage	Bifacial thinning	N/A	quartzite	1	
743	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt663	Unit: S.T. 17	Lev: 2				
278 1	Finished Biface Tool	Arrow Point	Complete	Ogallala Quartzite	1	Friley
278	Unmodified Debitage	Secondary flake	N/A	Chert	1	
278	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
278	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
278	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt664	Unit: S.T. 1	Lev: 1				
279	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
279	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
279	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
279	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
279	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt664	Unit: S.T. 2	Lev: 1				
280	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
280	Unmodified Debitage	Angular shatter	N/A	Silicified Wood	1	
41Tt664	Unit: S.T. 3	Lev: 1				
281	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt664	Unit: S.T. 7	Lev: 1				
282	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
282	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
282	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Tt664	Unit: S.T. 7	Lev: 2				
283	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
283	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt664	Unit: S.T. 7	Lev: 3				
284	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
284	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
284	Unmodified Debitage	Secondary flake	N/A	Chert	1	
284	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
284	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
284	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
41Tt664	Unit: S.T. 7	Lev: 4				
285	Unmodified Debitage	Secondary flake	N/A	Chert	1	
285	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
285	Unmodified Debitage	Angular shatter	N/A	Chert	1	
285	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
285	Unmodified Debitage	Thin flake frag	N/A	Ogallala Quartzite	1	
41Tt664	Unit: S.T. 9	Lev: 1				
286	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt664	Unit: S.T. 11	Lev: 1				
287	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
287	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
287	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
41Tt664	Unit: S.T. 11	Lev: 2				
288 1	Unfinished Biface	Aborted, Early	Fragment	Ogallala Quartzite	1	
288	Unmodified Debitage	Secondary flake	N/A	Chert	1	
288	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	2	
41Tt664	Unit: S.T. 13	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
296	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt664	Unit: S.T. 14	Lev: 1				
297	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Tt665	Unit: S.T. 1	Lev: 1				
290 1	Core	Tested nodule/pebble	N/A	Chert	1	
290	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
290	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt665	Unit: S.T. 6	Lev: 1				
291 1	Finished Biface Tool	Arrow Point	Complete	Ogallala Quartzite	1	Friley
41Tt666	Unit: S.T. 1	Lev: 1				
292	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt666	Unit: S.T. 1	Lev: 4				
293	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt666	Unit: S.T. 5	Lev: 3				
294	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt667	Unit: S.T. 1	Lev: 1				
298	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt667	Unit: S.T. 1	Lev: 3				
299	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt667	Unit: S.T. 4	Lev: 1				
300	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
300	Unmodified Debitage	Angular shatter	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt667 301	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Primary flake	N/A	Ogallala Quartzite	1	
41Tt667 302	Unit: S.T. 9 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Tt667 303	Unit: S.T. 10 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Ogallala Quartzite	1	
41Tt668 339	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
41Tt668 340	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Chert	1	
41Tt668 341	Unit: S.T. 1 Unfinished Biface	Lev: 4 Aborted, Early	Complete	Silicified Wood	1	
41Tt668 342	Unit: S.T. 3 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Tt669 343	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Tt669 344	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Quartzite	1	
751 1	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
751 1	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	2	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt669	Unit: S.T. 2	Lev: 1				
345	Unmodified Debitage	Primary flake	N/A	Chert	1	
345	Unmodified Debitage	Secondary flake	N/A	Silicified Wood	1	
345	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt669	Unit: S.T. 5	Lev: 3				
347	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt669	Unit: S.T. 6	Lev: 3				
348	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
753	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt669	Unit: S.T. 7	Lev: 3				
349	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Tt670	Unit: S.T. 1	Lev: 1				
397	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
350	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 2	Lev: 3				
351	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	possibly burned
41Tt670	Unit: S.T. 2	Lev: 4				
786	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
352	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 4	Lev: 3				
353	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
790	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 5	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
354	Unmodified Debitage	Secondary flake	N/A	Chert	1	
354	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 5	Lev: 2				
355	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
784	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	appears burned
41Tt670	Unit: S.T. 6	Lev: 1				
356	Unworked Stone	Burned Rock	N/A	Quartzite	1	
356	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	2	
783	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	Burned
783	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 6	Lev: 2				
357	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
357	Unmodified Debitage	Thin flake frag	N/A	Chert	1	
41Tt670	Unit: S.T. 7	Lev: 3				
358	Unmodified Debitage	Primary flake	N/A	Chert	1	
358	Unworked Stone	Burned Rock	N/A	Quartzite	1	
358	Unworked Stone	Burned Rock	N/A	Petrified Wood	1	
358	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
358	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
358	Unmodified Debitage	Thin flake frag	N/A	Ogallala Quartzite	1	
787	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Tt670	Unit: S.T. 8	Lev: 1				
359	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 8	Lev: 2				
360	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt670 361	Unit: S.T. 8 Ceramics/Clay	Lev: 3 Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670 362	Unit: S.T. 8 Ceramics/Clay	Lev: 4 Body sherd	Plain	grog/bone	1	
41Tt670 363	Unit: S.T. 9 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Quartzite	1	
363	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
363	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt670 364	Unit: S.T. 9 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
364	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
364	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670 365	Unit: S.T. 9 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
365	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt670 366	Unit: S.T. 10 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Chert	1	
366	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt670 367 1	Unit: S.T. 10 Unfinished Biface	Lev: 2 Aborted, Late	Fragment	Quartzite	1	
367	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt670 368	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
368	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
368	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
368	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt670	Unit: S.T. 10	Lev: 4				
369	Unworked Stone	Burned Rock	N/A	Quartzite	1	
369	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
369	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt670	Unit: S.T. 11	Lev: 1				
370	Unmodified Debitage	Primary flake	N/A	Chert	1	
370	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
370	Unmodified Debitage	Angular shatter	N/A	Chert	1	
781	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	Burned
781	Ceramics/Clay	Body sherd	Fingernail punctating	baked clay/sherd/grog	1	
781	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 11	Lev: 2				
371 1	Utilized flakes	Secondary flake	N/A	Chert	1	
371	Unmodified Debitage	Secondary flake	N/A	Quartzite	2	
371	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
371	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
779	Ceramics/Clay	Baked clay	N/A	not applicable	1	
779 1	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	
779	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	2	
41Tt670	Unit: S.T. 11	Lev: 3				
372	Unmodified Debitage	Secondary flake	N/A	Chert	2	
372	Unworked Stone	Burned Rock	N/A	Quartzite	2	
372 1	Unfinished Biface	Arrow Pt Preform	Complete	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No. Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
372	Unmodified Debitage	Tertiary flake	N/A	5	Chert
372	Unmodified Debitage	Angular shatter	N/A	3	Chert
372	Unmodified Debitage	Bifacial thinning	N/A	1	Chert
372	Unmodified Debitage	Bifacial thinning	N/A	2	Quartzite
774	Ceramics/Clay	Baked clay	N/A	2	not applicable
774	Ceramics/Clay	Body sherd	Plain	8	baked clay/sherd/grog
774	Ceramics/Clay	Body sherd	Punctated/Incised	1	baked clay/sherd/grog
774	Ceramics/Clay	Rim sherd	Plain	1	baked clay/sherd/grog
774	Ceramics/Clay	Sherd fragment	Red filmed	1	baked clay/sherd/grog
41Tt670	Unit: S.T. 11	Lev: 4			
780	Unmodified Debitage	Secondary flake	N/A	1	Quartzite
780	Utilized flakes	Tertiary flake	N/A	1	Chert
780	Unmodified Debitage	Angular shatter	N/A	1	Chert
373	Ceramics/Clay	Baked clay	N/A	1	not applicable
373	Ceramics/Clay	Sherd fragment	N/A	1	baked clay/sherd/grog
373	Ceramics/Clay	Neck sherd	Polished	1	baked clay/sherd/grog
41Tt670	Unit: S.T. 12	Lev: 1			
374	Ceramics/Clay	Body sherd	Plain	1	baked clay/sherd/grog
41Tt670	Unit: S.T. 12	Lev: 2			
375	Unmodified Debitage	Secondary flake	N/A	1	Chert
375	Unmodified Debitage	Secondary flake	N/A	1	Ogallala Quartzite
375	Unmodified Debitage	Tertiary flake	N/A	1	Ogallala Quartzite
41Tt670	Unit: S.T. 12	Lev: 3			
376	Unmodified Debitage	Tertiary flake	N/A	1	Ogallala Quartzite
41Tt670	Unit: S.T. 12	Lev: 4			
771	Unmodified Debitage	Secondary flake	N/A	1	Chert

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
771	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
771	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
771	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
771 1	Utilized flakes	Bifacial thin. flake	N/A	Chert	1	
377	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	5	
377	Ceramics/Clay	Body sherd	Incised	baked clay/sherd/grog	1	
377	Ceramics/Clay	Body sherd	Polished	baked clay/sherd/grog	1	
377	Ceramics/Clay	Body sherd	Burnished	baked clay/sherd/grog	1	
377	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 12	Lev: 5				
785	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
785	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
378	Ceramics/Clay	Body sherd	Incised	baked clay/sherd/grog	1	
378	Ceramics/Clay	Body sherd	Burnished	baked clay/sherd/grog	1	
378	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	3	
41Tt670	Unit: S.T. 13	Lev: 1				
379	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
379	Unmodified Debitage	Secondary flake	N/A	Chert	1	
379 1	Finished Biface Tool	Indet Point	Indet. fragment	Chert	1	
379	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
379	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt670	Unit: S.T. 13	Lev: 2				
380	Unmodified Debitage	Primary flake	N/A	Chert	1	
380	Unmodified Debitage	Secondary flake	N/A	Chert	3	
380	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt670	Unit: S.T. 13	Lev: 3				
381	Unmodified Debitage	Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
381	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
381	Unmodified Debitage	Angular shatter	N/A	Chert	1	
381	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	2	
41Tt670	Unit: S.T. 14	Lev: 1				
383	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 14	Lev: 2				
384	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
384	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
384	Unmodified Debitage	Angular shatter	N/A	Hematite	1	
384	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
41Tt670	Unit: S.T. 14	Lev: 3				
385	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 14	Lev: 4				
386	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 15	Lev: 1				
387	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
387	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
387 1	Utilized flakes	Bifacial thin. flake	N/A	Ogallala Quartzite	1	
788	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	1	
788	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	appears burned
41Tt670	Unit: S.T. 17	Lev: 2				
388	Unmodified Debitage	Primary flake	N/A	Chert	1	
388	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
388	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
388	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
789	Ceramics/Clay	Baked clay	N/A	not applicable	1	
789	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 17	Lev: 3				
389	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
389	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 17	Lev: 4				
390	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
390	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
390	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
390	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt670	Unit: S.T. 18	Lev: 2				
391	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 19	Lev: 3				
392	Unmodified Debitage	Secondary flake	N/A	Quartzite	2	
392	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
392	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
392	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
392	Unmodified Debitage	Angular shatter	N/A	Chert	1	
392	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Tt670	Unit: S.T. 19	Lev: 4				
393	Unmodified Debitage	Secondary flake	N/A	Chert	1	
393	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
393	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
393	Unmodified Debitage	Bifacial thinning	N/A	Silicified Wood	1	
41Tt670	Unit: S.T. 20	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
394	Unmodified Debitage	Primary flake	N/A	Quartzite	2	
394	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
394	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
41Tt670	Unit: S.T. 20	Lev: 2				
395	Unmodified Debitage	Primary flake	N/A	Chert	1	
395	Unmodified Debitage	Secondary flake	N/A	Chert	1	
395	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
395	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt670	Unit: S.T. 20	Lev: 3				
396	Unmodified Debitage	Secondary flake	N/A	Chert	1	
396	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
396	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 21	Lev: 2				
398	Unmodified Debitage	Secondary flake	N/A	Chert	1	
398	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
398	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt670	Unit: S.T. 21	Lev: 3				
399	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 21	Lev: 4				
400	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 22	Lev: 1				
401	Unmodified Debitage	Angular shatter	N/A	Chert	1	
401	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
732	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt670	Unit: S.T. 22	Lev: 2				
402	Unmodified Debitage	Secondary flake	N/A	Chert	1	
402	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
402	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
402	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
402	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
402	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 22	Lev: 4				
403	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
403	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
403	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 23	Lev: 1				
404	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 23	Lev: 2				
405	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
731 1	Ceramics/Clay	Body sherd	Fingernail punctating	baked clay/sherd/grog	2	
41Tt670	Unit: S.T. 23	Lev: 3				
406	Unworked Stone	Burned Rock	N/A	Quartzite	1	
406	Unworked Stone	Burned Rock	N/A	Sandstone	1	
730	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
730	Ceramics/Clay	Body sherd	Punctated/Incised	baked clay/sherd/grog	1	
730	Ceramics/Clay	Rim sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 23	Lev: 4				
407	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
728	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt670 408	Unit: S.T. 24 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Chert	1	
41Tt670 409	Unit: S.T. 24 Unmodified Debitage	Lev: 3 Primary flake	N/A	Ogallala Quartzite	1	
409	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
409	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt670 410	Unit: S.T. 24 Unmodified Debitage	Lev: 4 Secondary flake	N/A	Chert	1	
41Tt670 411	Unit: S.T. 26 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Quartzite	1	
411	Unmodified Debitage	Angular shatter	N/A	Chert	1	
792	Ceramics/Clay	Baked clay	N/A	not applicable	1	
41Tt670 412	Unit: S.T. 26 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
41Tt670 414	Unit: S.T. 28 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
414	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
770	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670 416	Unit: S.T. 30 Ceramics/Clay	Lev: 1 Body sherd	Brushing	baked clay/sherd/grog	1	
41Tt670 417	Unit: S.T. 30 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
417	Unmodified Debitage	Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt670	Unit: S.T. 31	Lev: 1				
418	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
418	Unmodified Debitage	Angular shatter	N/A	Chert	1	
418	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 31	Lev: 3				
419	Unmodified Debitage	Angular shatter	N/A	Chert	1	
769	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 31	Lev: 4				
420	Unworked Stone	Burned Rock	N/A	Quartzite	1	
420	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt670	Unit: S.T. 32	Lev: 3				
421	Unworked Stone	Burned Rock	N/A	Quartzite	1	
772	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
41Tt670	Unit: S.T. 32	Lev: 4				
422	Unworked Stone	Burned Rock	N/A	Quartzite	4	
422	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
768	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	
41Tt670	Unit: S.T. 33	Lev: 4				
424 1	Utilized flakes	Bifacial thin. flake	N/A	Chert	1	
424	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
776	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt670	Unit: S.T. 34	Lev: 2				
425	Unworked Stone	Burned Rock	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt670	Unit: S.T. 35	Lev: 2				
426	Unmodified Debitage	Secondary flake	N/A	Chert	1	
426	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
426	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 36	Lev: 4				
427	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt670	Unit: S.T. 37	Lev: 3				
428	Unmodified Debitage	Secondary flake	N/A	Quartzite	2	
777 1	Ceramics/Clay	Body sherd	Plain	grog/bone	2	
41Tt670	Unit: S.T. 37	Lev: 4				
429	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
429	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt670	Unit: S.T. 38	Lev: 2				
430	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
430	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt670	Unit: S.T. 39	Lev: 1				
431	Unmodified Debitage	Secondary flake	N/A	Silicified Wood	1	
41Tt670	Unit: S.T. 40	Lev: 2				
432 1	Ground/Peck/Battered	Mano	Complete	Quartzitic Sandstone	1	
432 2	Ground/Peck/Battered	Smoothed Stone	Fragment	Quartzitic Sandstone	1	
41Tt670	Unit: S.T. 40	Lev: 4				
433	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt670	Unit: SURF	Lev:				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
434	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Tt671	Unit: S.T. 1	Lev: 1				
435	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
435	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt671	Unit: S.T. 2	Lev: 1				
436	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt672	Unit: S.T. 1	Lev: 1				
474	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt672	Unit: S.T. 1	Lev: 2				
475	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
475	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt672	Unit: S.T. 1	Lev: 3				
476	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
476	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt672	Unit: S.T. 1	Lev: 4				
477	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
477	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 2	Lev: 2				
478	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
41Tt672	Unit: S.T. 3	Lev: 1				
479	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 6	Lev: 1				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
480	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 6	Lev: 2				
481	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 7	Lev: 2				
482	Unmodified Debitage	Secondary flake	N/A	Quartzite	4	
482	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
482	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 7	Lev: 3				
483	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 7	Lev: 4				
484	Unworked Stone	Burned Rock	N/A	Quartzite	1	
484	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	2	
484	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
484	Utilized flakes	Bifacial thin. flake	N/A	Quartzite	2	
41Tt672	Unit: S.T. 8	Lev: 1				
485	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 8	Lev: 2				
486	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt672	Unit: S.T. 8	Lev: 3				
487	Unmodified Debitage	Bifacial thinning	N/A	Quartzite	1	
41Tt672	Unit: S.T. 8	Lev: 4				
488	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
411t672 489	Unit: S.T. 9 Unworked Stone	Lev: 2 Burned Rock	N/A	Quartzite	1	
411t672 490	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Quartzite	1	
411t672 554	Unit: S.T. 11 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Ogallala Quartzite	1	
411t672 554	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
411t672 491	Unit: S.T. 11 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Chert	1	
411t672 492	Unit: S.T. 11 Unmodified Debitage	Lev: 4 Angular shatter	N/A	Quartzite	1	
411t672 493	Unit: S.T. 13 Unmodified Debitage	Lev: 3 Primary flake	N/A	Chert	1	
411t672 494	Unit: S.T. 13 Unmodified Debitage	Lev: 4 Tertiary flake	N/A	Quartzite	1	
411t672 495	Unit: S.T. 14 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Quartzite	1	
411t672 495	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
411t672 496	Unit: S.T. 14 Unmodified Debitage	Lev: 3 Primary flake	N/A	Quartzite	1	
411t672 496	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
411t672 496	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt672 497	Unit: S.T. 15 Unmodified Debitage	Lev: 1 Primary flake	N/A	Ogallala Quartzite	1	
41Tt672 498	Unit: S.T. 16 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
498	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt672 499	Unit: S.T. 16 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
41Tt673 500	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Quartzite	1	
41Tt673 501	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Quartzite	1	
501	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt673 502	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt673 503	Unit: S.T. 2 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Tt673 504	Unit: S.T. 2 Unmodified Debitage	Lev: 4 Primary flake	N/A	Quartzite	1	
504	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
504	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt673 505	Unit: S.T. 3 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt673 506 1	Unit: S.T. 4 Unfinished Biface	Lev: 1 Unident Fragment	Fragment	Chert	1	
41Tt673 507	Unit: S.T. 4 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Chert	1	
41Tt673 508	Unit: S.T. 4 Unmodified Debitage	Lev: 3 Primary flake	N/A	Quartzite	1	
508	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Tt673 509	Unit: S.T. 4 Unmodified Debitage	Lev: 4 Angular shatter	N/A	Chert	1	
41Tt673 511	Unit: S.T. 6 Unworked Stone	Lev: 3 Burned Rock	N/A	Quartzite	1	
511	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt673 510	Unit: S.T. 7 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Tt673 726	Unit: S.T. 7 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Quartzite	1	
41Tt673 512	Unit: S.T. 8 Unmodified Debitage	Lev: 3 Secondary flake	N/A	Quartzite	1	
41Tt673 513	Unit: S.T. 8 Unmodified Debitage	Lev: 4 Secondary flake	N/A	Ogallala Quartzite	1	
41Tt673 514	Unit: S.T. 10 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
514	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt674	Unit: S.T. 1	Lev: 1				
515	Unworked Stone	Burned Rock	N/A	Quartzite	1	
515	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
741	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt674	Unit: S.T. 1	Lev: 2				
742	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	3	
41Tt674	Unit: S.T. 1	Lev: 3				
517	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt674	Unit: S.T. 2	Lev: 1				
519	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Tt674	Unit: S.T. 2	Lev: 2				
518	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt674	Unit: S.T. 2	Lev: 3				
520	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
520	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
520	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt674	Unit: S.T. 5	Lev: 1				
521	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt674	Unit: S.T. 5	Lev: 3				
522	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt674 523	Unit: S.T. 5 Unmodified Debitage	Lev: 4 Angular shatter	N/A	Chert	1	
41Tt674 524 1	Unit: S.T. 7 Ceramics/Clay	Lev: 2 Body sherd	Plain	grog/bone	2	
41Tt674 526 1	Unit: S.T. 7 Core	Lev: 3 Complete Core	Multidirectional	Chert	1	
526	Unworked Stone	Burned Rock	N/A	Quartzite	1	
526	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
738	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	
41Tt674 525	Unit: S.T. 7 Ceramics/Clay	Lev: 4 Body sherd	Plain	baked clay/sherd/grog	1	
41Tt674 527	Unit: S.T. 8 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Ogallala Quartzite	1	
527	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
740	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt674 528	Unit: S.T. 9 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
41Tt674 529	Unit: S.T. 11 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
529	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt674 530	Unit: S.T. 11 Ceramics/Clay	Lev: 2 Body sherd	Plain	baked clay/sherd/grog	1	
530 1	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	4	same vessel as 737-1

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt674	Unit: S.T. 11	Lev: 3				
531	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
737 1	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	same vessel as 530-1
737 1	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	2	same vessel as 530-1
41Tt674	Unit: S.T. 11	Lev: 4				
532	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt674	Unit: S.T. 12	Lev: 3				
534	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
41Tt674	Unit: S.T. 12	Lev: 4				
535	Unworked Stone	Burned Rock	N/A	Quartzite	1	
41Tt674	Unit: S.T. 13	Lev: 2				
536	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Tt674	Unit: S.T. 13	Lev: 3				
537	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt674	Unit: S.T. 14	Lev: 1				
538	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
538	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
538	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt674	Unit: S.T. 14	Lev: 2				
539 1	Core	Complete Core	Multidirectional	Chert	1	
736	Ceramics/Clay	Body sherd	Red filmed	baked clay/sherd/grog	1	same vessel as 735-1
41Tt674	Unit: S.T. 15	Lev: 2				
540	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
411t674	Unit: S.T. 15	Lev: 3				
541	Unmodified Debitage	Primary flake	N/A	quartzite	1	
541	Unmodified Debitage	Secondary flake	N/A	quartzite	1	
411t674	Unit: S.T. 16	Lev: 1				
542	Unmodified Debitage	Secondary flake	N/A	Chert	2	
542	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
542	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
542	Unmodified Debitage	Angular shatter	N/A	Chert	1	
735	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
735 2	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	4	Pease Brushed Incised
735	Ceramics/Clay	Body sherd	Brushing	baked clay/sherd/grog	1	
735 2	Ceramics/Clay	Body sherd	Applique bands	baked clay/sherd/grog	1	Pease Brushed Incised
735 1	Ceramics/Clay	Body sherd	Red filmed	baked clay/sherd/grog	1	same vessel as 736-1
735	Ceramics/Clay	Sherd fragment	N/A	baked clay/sherd/grog	1	
411t674	Unit: S.T. 17	Lev: 1				
543	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
411t675	Unit: S.T. 1	Lev: 2				
572	Ceramics/Clay	Sherd fragment	Plain	baked clay/sherd/grog	2	
411t675	Unit: S.T. 2	Lev: 3				
573	Unmodified Debitage	Angular shatter	N/A	Chert	1	
411t675	Unit: S.T. 4	Lev: 1				
585	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
411t675	Unit: S.T. 4	Lev: 3				
586	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt675	Unit: S.T. 5	Lev: 2				
574	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
574	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt675	Unit: S.T. 6	Lev: 1				
575	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt675	Unit: S.T. 8	Lev: 1				
576	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt675	Unit: S.T. 12	Lev: 3				
577	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
41Tt676	Unit: S.T. 1	Lev: 3				
584	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
584	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt676	Unit: S.T. 2	Lev: 2				
578	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt676	Unit: S.T. 3	Lev: 1				
579	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt676	Unit: S.T. 6	Lev: 1				
580	Unmodified Debitage	Angular shatter	N/A	Chert	1	
580	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
745 1	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
41Tt676	Unit: S.T. 6	Lev: 2				
581	Unmodified Debitage	Secondary flake	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
581	Unmodified Debitage	Angular shatter	N/A	Chert	1	
746	Ceramics/Clay	Body sherd	Fingernail punctating	baked clay/sherd/grog	1	
41Tt676	Unit: S.T. 7	Lev: 1				
582	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt676	Unit: S.T. 10	Lev: 2				
583	Unmodified Debitage	Bifacial thinning	N/A	Chert	1	
41Tt677	Unit: S.T. 1	Lev: 2				
610	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
610	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt677	Unit: S.T. 1	Lev: 3				
611	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
611	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt677	Unit: S.T. 2	Lev: 1				
612	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	2	
41Tt677	Unit: S.T. 3	Lev: 1				
613	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt677	Unit: S.T. 5	Lev: 2				
614	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
41Tt677	Unit: S.T. 6	Lev: 1				
615	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt677	Unit: S.T. 6	Lev: 2				
631	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
631	Unmodified Debitage	Angular shatter	N/A	Chert	2	
41Tt677	Unit: S.T. 7	Lev: 1				
616	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
616	Unmodified Debitage	Primary flake	N/A	Ogallala Quartzite	1	
616	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
616	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
616	Unmodified Debitage	Angular shatter	N/A	Quartzite	2	
616	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	2	
41Tt677	Unit: S.T. 7	Lev: 2				
617	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
41Tt677	Unit: S.T. 7	Lev: 3				
618	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt677	Unit: S.T. 7	Lev: 4				
619	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
619	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt677	Unit: S.T. 7	Lev: 5				
620	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
620	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt677	Unit: S.T. 9	Lev: 1				
621	Unmodified Debitage	Secondary flake	N/A	Chert	1	
729	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt677	Unit: S.T. 9	Lev: 2				
622	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
622	Unmodified Debitage	Angular shatter	N/A	Chert	1	
622	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt677	Unit: S.T. 9	Lev: 3				
623	Unmodified Debitage	Secondary flake	N/A	Chert	1	
623	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt677	Unit: S.T. 10	Lev: 1				
624	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
41Tt677	Unit: S.T. 11	Lev: 2				
625	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt677	Unit: S.T. 13	Lev: 1				
626	Unmodified Debitage	Secondary flake	N/A	Silicified Wood	1	
41Tt677	Unit: S.T. 14	Lev: 1				
627	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt677	Unit: S.T. 15	Lev: 1				
629	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
41Tt678	Unit: S.T. 1	Lev: 1				
632	Unmodified Debitage	Secondary flake	N/A	Chert	1	
41Tt678	Unit: S.T. 1	Lev: 2				
633	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
633	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
41Tt678 678	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Tt678 634	Unit: S.T. 6 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Ogallala Quartzite	1	
41Tt679 641	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
41Tt679 641	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Angular shatter	N/A	Quartzite	1	
41Tt679 642	Unit: S.T. 2 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Quartzite	1	
41Tt679 643	Unit: S.T. 3 Unmodified Debitage	Lev: 3 Primary flake	N/A	Chert	1	
41Tt679 644	Unit: S.T. 4 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	1	
41Tt679 679	Unit: S.T. 4 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Quartzite	1	
41Tt679 645	Unit: S.T. 5 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
41Tt679 646	Unit: S.T. 7 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Quartzite	1	
41Tt679 647	Unit: S.T. 7 Unmodified Debitage	Lev: 2 Secondary flake	N/A	Quartzite	3	
647 1	Unfinished Biface	Unident Fragment	Fragment	Ogallala Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
411t680	Unit: S.T. 1	Lev: 1				
648	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
648	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
648	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
648	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
411t680	Unit: S.T. 1	Lev: 2				
649	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
649	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
649	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
411t680	Unit: S.T. 1	Lev: 3				
650	Finished Biface Tool	Dart Point	Tip	Chert	1	
650	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
411t680	Unit: S.T. 2	Lev: 1				
651 1	Utilized flakes	Secondary flake	N/A	Chert	1	
651	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
651 2	Utilized flakes	Secondary flake	N/A	Ogallala Quartzite	1	
651	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
411t680	Unit: S.T. 7	Lev: 1				
652	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
411t680	Unit: S.T. 7	Lev: 2				
653	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
653	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
653	Unmodified Debitage	Angular shatter	N/A	Chert	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temp	Qty.	Type Name/Comments
41Tt680	Unit: S.T. 7	Lev: 3				
654	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
654	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
654 1	Utilized flakes	Bifacial thin. flake	N/A	Ogallala Quartzite	1	
41Tt680	Unit: S.T. 8	Lev: 2				
655	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
41Tt680	Unit: S.T. 10	Lev: 1				
656	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
41Tt680	Unit: S.T. 11	Lev: 1				
657	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
41Tt680	Unit: S.T. 11	Lev: 2				
658	Unmodified Debitage	Tertiary flake	N/A	Ogallala Quartzite	1	
658	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt80	Unit: S.T. 3	Lev: 1				
638	Unmodified Debitage	Secondary flake	N/A	Chert	1	
638	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt80	Unit: S.T. 3	Lev: 2				
639	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
639	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
41Tt80	Unit: S.T. 5	Lev: 2				
640	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
640	Unmodified Debitage	Bifacial thinning	N/A	Ogallala Quartzite	1	
41Tt80	Unit: SURF	Lev:				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
637	Unmodified Debitage	Angular shatter	N/A	Chert	1	
41Tt82	Unit: SURF	Lev:				
630	Ceramics/Clay	Body sherd	Plain	grog/bone	1	
LOC 1	Unit: S.T.	Lev: 1				
1	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
LOC 2	Unit: S.T.	Lev: 1				
28	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
28	Unmodified Debitage	Angular shatter	N/A	Chert	1	
LOC 7	Unit: S.T.	Lev: 1				
111	Unmodified Debitage	Tertiary flake	N/A	Chert	2	
LOC 8	Unit: S.T.	Lev: 1				
171	Unmodified Debitage	Primary flake	N/A	Chert	1	
LOC 10	Unit: S.T.	Lev: 1				
200	Unmodified Debitage	Angular shatter	N/A	Silicified Wood	2	
LOC 11	Unit: S.T.	Lev: 1				
295	Unmodified Debitage	Tertiary flake	N/A	Quartzite	2	
LOC 12	Unit: S.T.	Lev: 1				
326	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
326	Unmodified Debitage	Tertiary flake	N/A	Silicified Wood	1	
LOC 14	Unit: S.T.	Lev: 1				
445	Unmodified Debitage	Primary flake	N/A	Quartzite	1	
445	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
LOC 15 446	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Chert	1	
LOC 16 461	Unit: SURF Unmodified Debitage	Lev: Tertiary flake	N/A	Chert	1	
LOC 17 544	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
LOC 18 594	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Silicified Wood	1	
LOC 19 569	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Quartzite	1	
587	Unmodified Debitage	Tertiary flake	N/A	Quartzite	1	
LOC 20 570	Unit: S.T. 2 Unmodified Debitage	Lev: 1 Tertiary flake	N/A	Ogallala Quartzite	1	
570	Unmodified Debitage	Angular shatter	N/A	Chert	1	
LOC 20 571	Unit: S.T. 2 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
LOC 21 595	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Tertiary flake	N/A	Chert	1	
LOC 22 596	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Quartzite	1	
LOC 24	Unit: S.T. 1	Lev: 2				

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
635	Unmodified Debitage	Secondary flake	N/A	Quartzite	1	
LOC 25	Unit: S.T. 1	Lev: 2				
636	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
LOC 26	Unit: S.T. 1	Lev: 1				
659	Unmodified Debitage	Tertiary flake	N/A	Chert	1	
LOC 27	Unit: S.T. 1	Lev: 1				
660	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
LOC 27	Unit: S.T. 2	Lev: 1				
661	Unmodified Debitage	Secondary flake	N/A	Ogallala Quartzite	1	
LOC 28	Unit: S.T. 1	Lev: 1				
662	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	1	
LOC 28	Unit: S.T. 1	Lev: 2				
663	Ceramics/Clay	Body sherd	Plain	baked clay/sherd/grog	2	
LOC 29	Unit: S.T. 1	Lev: 1				
664	Unmodified Debitage	Angular shatter	N/A	Ogallala Quartzite	1	
LOC 29	Unit: S.T. 1	Lev: 3				
665	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	
LOC 30	Unit: S.T. 1	Lev: 1				
666	Unmodified Debitage	Primary flake	N/A	Silicified Wood	1	
LOC 31	Unit: S.T. 1	Lev: 2				
680	Unmodified Debitage	Angular shatter	N/A	Quartzite	1	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA 5
Prehistoric Artifact Data

Bag Art No. No.	Class	Type	Other	Material/Temper	Qty.	Type Name/Comments
LOC 32 681	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
LOC 33 682	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Angular shatter	N/A	Chert	1	
LOC 33 683 1	Unit: S.T. 1 Uniface	Lev: 2 Notch	Complete	Quartzite	1	
LOC 33 684	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Angular shatter	N/A	Ogallala Quartzite	1	
LOC 34 685	Unit: S.T. 1 Unmodified Debitage	Lev: 1 Secondary flake	N/A	Ogallala Quartzite	1	
LOC 34 686	Unit: S.T. 1 Unmodified Debitage	Lev: 2 Primary flake	N/A	Ogallala Quartzite	1	
LOC 34 687	Unit: S.T. 1 Unmodified Debitage	Lev: 3 Tertiary flake	N/A	Chert	1	

APPENDIX D

**HISTORIC ARTIFACTS RECOVERED DURING
THE 1993-1994 WHITE OAK CREEK MITIGATION AREA
(WOCMA) SURVEY**

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA
Historic Artifact Data

Rec No.	Bag Art No.	Class	Type	Other	Dates	Qty.	Family	Analysis Comment
41B	5	Unit: S.T. 17 1 OTHER/MISC	Lev: 1 Graphite	skeet	Indeterminate	2	Activities	modern
41B	6	Unit: S.T. 17 1 OTHER/MISC	Lev: 3 Graphite	skeet	Indeterminate	1	Activities	modern
41B	7	Unit: S.T. 1 22 METAL	Lev: 2 Iron	cut nail	1840-1880	1	Architectural	6.3cm (8d)
41B	8	Unit: S.T. 4 26 METAL	Lev: 1 Iron	wire nail	post-1880	1	Architectural	6.3cm (8d)
41B	9	Unit: S.T. 1 68 METAL	Lev: 1 Iron	ring	Indeterminate	1	Activities	
41B	11	Unit: S.T. 5 160 GLASS	Lev: 1 Clear	bottle	post-1910	1	Domestic	ABM bottle
41B	10	Unit: S.T. 6 161 PLASTIC	Lev: 1 Bakelite	Indeterminate	1907-1940's	1	Indeterminate	black, slightly burned
41B	14	Unit: SURF 74 3 GLASS	Lev: Lt. Green	bottle	post-1910	1	Domestic	embossed "...or...."; relief molded; soft drink bottle
15	74	4 GLASS	Amber/Brown	bottle	post-1920	3	Personal	well rounded, snuff bottle bases
16	74	5 GLASS	Amber/Brown	bottle	post-1910	1	Personal	snuff bottle lip
17	74	6 METAL	Iron	buckle	Indeterminate	1	Activities	horse/stable gear
12	74	1 METAL	Lead	Indeterminate	Indeterminate	1	Activities	
13	74	2 CERAMIC	Whiteware	undecorated	post-1890	2	Domestic	
18	74	7 METAL	Iron	chain link	Indeterminate	1	Activities	track line chain

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA
Historic Artifact Data

Rec Bag Art	No. No. No.	Class	Type	Other	Dates	Qty. Family	Analysis Comment
41Bw555	Unit: S.T. 1	Lev: 2					
19 143 1	GLASS	Clear	bottle	post-1910	1 Domestic	ABM	
41Mx48	Unit: SURF	Lev:					
20 86 1	CERAMIC	Stoneware	salt glaze ext/natural clay slipped int.	1840-1900	1 Domestic	broken	
41Mx49	Unit: S.T. 1	Lev: 1					
25 95 2	METAL	Iron	flat	Indeterminate	1 Activities	folded rim (bucket?)	
26 95 3	METAL	Iron	Indeterminate	Indeterminate	1 Indeterminate	dome-shaped	
24 95 1	GLASS	Clear	bottle	post-1910	1 Domestic	ABM	
41Mx49	Unit: S.T. 2	Lev: 1					
48 92 1	CERAMIC	Stoneware	Bristol slip ext/natural clay slip int.	1890-1915	1 Domestic		
50 92 3	METAL	Iron	cut nail	1840-1880	1 Architectural	5.1cm (6d); burned	
52 92 5	METAL	Iron	flat	Indeterminate	1 Indeterminate	burned	
53 92 6	METAL	Iron	cast	Indeterminate	1 Indeterminate		
49 92 2	GLASS	Clear	bottle	post-1910	1 Domestic	ABM	
51 92 4	METAL	Iron	wire nail	post-1880	1 Architectural	broken	
41Mx49	Unit: S.T. 2	Lev: 2					
46 141 2	METAL	Iron	wire nails	post-1880	2 Architectural	broken	
45 141 1	GLASS	Clear	bottle	post-1910	1 Domestic	ABM	
41Mx49	Unit: S.T. 3	Lev: 1					
56 98 3	METAL	Iron	cast	Indeterminate	1 Indeterminate		

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA
Historic Artifact Data

Rec No.	Bag No.	Art No.	Class	Type	Other	Dates	Qty.	Family	Analysis Comment
57	98	4	METAL	Iron	fence wire	Indeterminate	2	Activities	
58	98	5	METAL	Iron	wire nails	post-1880	4	Architectural	broken
59	98	6	METAL	Iron	wire nails	post-1880	2	Architectural	7.6cm (10d); 1 burned
60	98	7	METAL	Iron	wire nail	post-1880	1	Architectural	7.0cm (9d)
61	98	8	METAL	Iron	wire nail	post-1880	1	Architectural	6.3cm (8d)
55	98	2	METAL	Iron	flat	Indeterminate	11	Indeterminate	
64	98	11	BLDG MAT	Brick	hand pressed	pre-1890	3	Architectural	1 with glaze
65	98	12	CERAMIC	Stoneware	two tone ext/natural clay slip int.	1890-1900	4	Domestic	3 crossmend
66	98	13	CERAMIC	Whiteware	undecorated	post-1890	2	Domestic	slightly burned
67	98	14	GLASS	Amber/Brown	bottle	post-1900	1	Domestic	embossed
68	98	15	GLASS	Olive	bottle	Indeterminate	1	Domestic	
69	98	16	GLASS	Mang/Solar	bottle	1880-1920	1	Domestic	hand finished lip & neck; flaired
62	98	9	METAL	Iron	cut nails	1840-1880	2	Architectural	prescription lip finish
63	98	10	METAL	Brass	.22 caliber rimfire	1906-1916	1	Activities	broken "R"
41Mx49	Unit:	S.T.	3	Lev: 2					
30	97	1	GLASS	Mang/Solar	bottle	1880-1920	2	Domestic	1 base sherd
31	97	2	METAL	Iron	tin can	post-1900	24	Domestic	
33	97	4	METAL	Iron	wire	Indeterminate	4	Activities	
32	97	3	METAL	Iron	wire nail	post-1880	1	Architectural	4.4cm (5d)
34	97	5	METAL	Iron	wire nail	post-1880	1	Architectural	broken
41Mx49	Unit:	S.T.	6	Lev: 1					
35	190	1	BLDG MAT	Brick	hand pressed	pre-1890	3	Architectural	
40	190	6	GLASS	Clear	Indeterminate	Indeterminate	2	Indeterminate	burned & melted
41	190	7	GLASS	Clear	bottle	post-1910	1	Domestic	ABM
42	190	8	GLASS	Mang/Solar	bottle	1880-1920	1	Domestic	
43	190	9	CERAMIC	Whiteware	ivory tinted	post-1920	1	Domestic	

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA
Historic Artifact Data

Rec No.	Bag No.	Art No.	Class	Type	Other	Dates	Qty.	Family	Analysis Comment
39	190	5	METAL	Iron	large screw	Indeterminate	1	Activities	square head; 17.5cm
38	190	4	METAL	Iron	wire nail	post-1880	1	Architectural	broken
41Mx49			Unit: S.T. 7	Lev: 1					
47	193	1	CERAMIC	Stoneware	natural clay slipped int/ext	1875-1900	1	Domestic	
41Mx49			Unit: S.T. 8	Lev: 2					
44	739	1	GLASS	Clear	bottle	post-1910	1	Domestic	ABM
41Mx49			Unit: S.T. 10	Lev: 1					
28	197	1	METAL	Iron	wire nail	post-1880	1	Architectural	7.6cm (10d)
29	197	2	BLDG MAT	Brick	hand pressed	pre-1890	2	Architectural	
41Mx49			Unit: S.T. 10	Lev: 2					
22	198	2	METAL	Iron	wire nail	post-1880	1	Architectural	5.7cm (7d)
23	198	3	METAL	Iron	wire nails	post-1880	2	Architectural	6.3cm (8d)
21	198	1	METAL	Iron	wire nail	post-1880	1	Architectural	broken
41Mx49			Unit: S.T. 10	Lev: 3					
27	199	1	GLASS	Mang/Solar	banded	post-1890	1	Domestic	blue band w/gilding
41Tt661			Unit: S.T. 2	Lev: 1					
3	240	1	METAL	Iron	cast	Indeterminate	1	Activities	bracket (?)
4	240	2	BLDG MAT	Brick	machine made	post-1890	1	Architectural	
41Tt661			Unit: S.T. 6	Lev: 1					
2	241	1	METAL	Iron	wire nail	post-1880	1	Architectural	8.9cm (16d)

Date: 02/27/96

Geo-Marine Inc.
1106-010 WOCMA
Historic Artifact Data

Rec No.	Bag No.	Art No.	Class	Type	Other	Dates	Qty.	Family	Analysis Comment	
41Tt661	1	242	1	Unit: S.T. 6 METAL	Lev: 2 Iron	wire nail	post-1880	1	Architectural	13.7cm (60d)-spike

APPENDIX E

**VERTEBRATE FAUNA FROM SIX SITES IN THE
WHITE OAK CREEK MITIGATION AREA (WOCMA),
NORTHEAST TEXAS**

by
Brian S. Shaffer

Provenience (Unit/Level)	Depth (cm)	N	Taxon	Common Name	Element	Portion of Element	Side	Taphonomy and Comments
<i>41BW553</i>								
Surface	0	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, spiral fracture, calcined
Surface	0	1	<i>Odocoileus</i> sp.	Deer	Tibia	Distal end	Left	Light weathering, spiral fracture
S.T. 1/L. 3	40-60	1	Artiodactyla (medium)	Antelope/deer	Metapodial	Distal articular condyle	Unknown	Light weathering, angular fracture, calcined
S.T. 9/L. 3	40-60	1	Vertebrata	Vertebrate	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
S.T. 19/L. 2	20-40	1	Artiodactyla (medium)	Antelope/deer	Humerus	Distal medial part of shaft	Right	Marked weathering, angular fracture
S.T. 28/L. 1	0-20	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
S.T. 28/L. 1	0-20	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, charred
S.T. 28/L. 2	20-40	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, charred
S.T. 28/L. 2	20-40	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture
S.T. 28/L. 2	20-40	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture
S.T. 28/L. 3	40-60	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
<i>41MX49</i>								
S.T. 2/L. 2	20-40	1	Mammalia (small)	Mouse-sized mammal	Vertebra	Fragment	Axial	Light weathering, angular fracture
S.T. 2/L. 2	20-40	1	Mammalia (small)	Mouse-sized mammal	Cervical vertebra	Complete	Axial	Light weathering, angular fracture, unfused
S.T. 2/L. 2	20-40	1	<i>Sciurus</i> sp.	Squirrel	Scapula	Glenoid fossa & incomplete blade	Left	Light weathering, angular fracture
S.T. 2/L. 2	20-40	1	<i>Sciurus</i> sp.	Squirrel	Pelvis	Os coxa	Left	Light weathering, angular fracture
S.T. 3/L. 1	0-20	1	Testudinata	Turtle	Plastron	Fragment	Unknown	Light weathering, angular fracture, charred
S.T. 3/L. 2	20-40	1	Artiodactyla (medium)	Antelope/deer	Metapodial	Diaphyseal fragment	Unknown	Light weathering, angular fracture, charred
S.T. 6/L. 1	0-20	1	<i>Procyon lotor</i>	Raccoon	Calcaneus	Fragment	Left	Light weathering, angular fracture, gnawed

Provenience (Unit/Level)	Depth (cm)	N	Taxon	Common Name	Element	Portion of Element	Side	Taphonomy and Comments
41MX51								
S.T. 11/L. 1	0-20	1	Mammalia	Mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
41MX97								
S.T. 2/L. 1	0-20	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture
S.T. 2/L. 1	0-20	1	Artiodactyla (medium)	Antelope/deer	Femur	Diaphyseal fragment	Unknown	Light weathering, spiral fracture
41TT670								
S.T. 11/L. 1	0-20	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
S.T. 11/L. 2	20-40	1	Artiodactyla (medium)	Antelope/deer	Fused 3rd and 4th metatarsal	Fragment	Unknown	Light weathering, angular fracture, calcined
S.T. 11/L. 3	40-60	1	<i>Odocoileus</i> sp.	Deer	Tooth	Cheek tooth fragment	Unknown	Light weathering, angular fracture
S.T. 32/L. 3	40-60	1	Mammalia (medium/large)	Canid-deer sized mammal	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, calcined
41TT674								
S.T. 12/L. 2	20-40	1	Vertebrata	Vertebrate	Indeterminate	Fragment	Unknown	Light weathering, angular fracture, charred

APPENDIX F

**CURATED MATERIAL RESULTING FROM THE
THE 1993-1994 WHITE OAK CREEK MITIGATION AREA
(WOCMA) SURVEY**

CURATED MATERIALS

The materials from this investigation are to be curated at the Texas Archeological Research Laboratory at the University of Texas, Austin. The following list of items enumerates the materials to be curated at this facility under Contract No. DACA63-90-D-0006, Delivery Order No. 010, with the Fort Worth District of the U.S. Army Corps of Engineers:

1. One copy of the Scope of Work
2. One copy of the Final Report
3. All of the original field notes, maps, and records
4. One acid free copy of all field notes, maps, and records
5. One acid free copy of each site form
6. Black-and-white contact sheets, negatives, and photo data sheets
7. Color slides and photo data sheets
8. The original artifact analysis data sheets
9. Acid free copies of the original artifact analysis data sheets
10. Computer disk(s) containing the dBASE IV files for the artifact analysis data
11. One printout of each dBASE file, and a codebook for deciphering each database
12. Laboratory and Field Inventories for all collected materials
13. All collected artifacts and samples